United Nations

A/64/66/Add.1*

General Assembly

Distr.: General
25 November 2009

Original: English

Sixty-fourth session
Agenda item 76
Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General**

Summary

The present report has been prepared pursuant to the request of the General Assembly in paragraph 173 of its resolution 63/111 that the Secretary-General submit to the Assembly at its sixty-fourth session a comprehensive report on developments and issues relating to ocean affairs and the law of the sea, including the implementation of the resolution.

* Reissued for technical reasons.

** Owing to the page limit, this report contains a mere summary of the most important recent developments and selected parts of contributions by relevant agencies, programmes and bodies.

09-49930* (E) 301109

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I. Introduction

1. This year is marked, in addition to the many developments described in the present report, by the fifteenth anniversary of the entry into force of the United Nations Convention on the Law of the Sea ("the Convention") and by the first observance by the United Nations of World Oceans Day on 8 June 2009.[1] These events provide an opportunity to reflect on the crucial importance of oceans for human life and development, including the achievement of the Millennium Development Goals, and the critical role that the Convention and other relevant instruments play for States in deriving benefits from the seas and oceans and meeting the challenges of maintaining the sustainability of the oceans.

2. The present report provides an overview of developments in ocean affairs and the law of the sea. It is intended to assist the General Assembly in its annual review and evaluation of the implementation of the Convention and other developments related to ocean affairs and the law of the sea. It should be read in conjunction with the first part of the report of the Secretary-General on oceans and the law of the sea (A/64/66), which addressed the topic of focus of the tenth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea ("Consultative Process"), namely "Implementation of the outcomes of the Consultative Process, including a review of its achievements and shortcomings in the first nine meetings"; the report of the Secretary-General on actions taken by States and regional fisheries management organizations and arrangements to give effect to paragraphs 83 to 90 of General Assembly resolution 61/105 on sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks ("United Nations Fish Stocks Agreements"), and related instruments (A/64/305); the report of the Secretary-General to assist the third meeting of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction ("General Assembly Working Group") (A/64/66/Add.2); the report on the work of the Consultative Process at its tenth meeting (A/64/131); and the report of the nineteenth Meeting of States Parties to the Convention (SPLOS/203).

II. United Nations Convention on the Law of the Sea and its implementing agreements

A. Status of the Convention and its implementing agreements

3. As at 31 August 2009, there were 159 parties to the Convention, including the European Community, as a result of the accession thereto by Liberia (25 September 2008), and ratifications by Switzerland (1 May 2009) and the Dominican Republic (10 July 2009). Thus, the number of parties has now reached the number of original

[1] The theme of the inaugural observance of World Oceans Day was "Our oceans, our responsibility". See website of the Division for Ocean Affairs and the Law of the Sea of the Secretariat at www.un.org/Depts/los.

signatories of the Convention (159 as at 9 December 1984).[2] The number of parties to the Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 increased to 137, as a result of the accession thereto by Guyana on 25 September 2008. In addition, Liberia, Switzerland and the Dominican Republic have expressed their consent to be bound by the Agreement on the dates referred to above. The number of parties to the United Nations Fish Stocks Agreement rose to 75, including the European Community, as a result of the accession by Slovakia (6 November 2008), Mozambique (10 December 2008), Panama (16 December 2008) and Tuvalu (2 February 2009).

4. Upon ratification of the Convention, Switzerland made a declaration on the choice of procedure under article 287. Two declarations were also made, by Gabon (23 January 2009) and Trinidad and Tobago (13 February 2009), in relation to optional exceptions to the applicability of part XV, section 2 of the Convention under its article 298. Two States made declarations under articles 43 and 47 of the United Nations Fish Stocks Agreement: Hungary (20 April 2009) and Slovakia (22 April 2009). In addition, on 10 September 2008, the Secretary-General received a communication from the Government of Spain with regard to the declaration made by Morocco upon ratification of the Convention (31 May 2007).

B. Meeting of States Parties

5. The nineteenth Meeting of States Parties to the Convention was held at United Nations Headquarters from 22 to 26 June 2009. The Meeting took note with appreciation of the annual report of the International Tribunal for the Law of the Sea for 2008 (SPLOS/191), as well as the information reported by the Secretary-General of the International Seabed Authority and the Chairman of the Commission on the Limits of the Continental Shelf (the "Commission").

6. The Meeting considered budgetary matters of the International Tribunal for the Law of the Sea and took note, with appreciation, of the report of the external auditors for the financial period 2007-2008, with financial statements of the Tribunal as at 31 December 2008 (SPLOS/192). The Meeting also took note, with appreciation, of the report of the Tribunal on budgetary matters for 2007-2008 (SPLOS/193) and decided that the amount of €784,136, corresponding to a part of the cash surplus for the financial period 2007-2008, would be surrendered and deducted from the assessed contributions of the States parties for 2010.

7. Following the consideration of a note by the Tribunal, entitled "Conditions of service and compensation for members of the International Tribunal for the Law of the Sea: Adjustment of the remuneration of members of the International Tribunal for the Law of the Sea" (SPLOS/194), the Meeting adopted the "Decision on adjustment of the remuneration of members of the International Tribunal for the Law of the Sea and their pension" (SPLOS/200).

8. The Meeting also addressed the workload of the Commission in the light of the letter dated 20 April 2009 from the Chairman of the Commission addressed to the President of the nineteenth Meeting (SPLOS/195) and a presentation on the workload of the Commission made by its Chairman in the course of the Meeting. Delegations expressed concern over the increased workload faced by the

[2] See article 305, para. 2, of the Convention.

Commission, in particular in view of the fact that States had made 51 submissions to the Commission and had transmitted to the Secretary-General 43 sets of preliminary information indicative of the outer limits of their continental shelf beyond 200 nautical miles, in accordance with paragraph 1 (a) of the decision taken at the eighteenth Meeting of States Parties (SPLOS/183). Other submissions are expected in the future.

9. Furthermore, in the agreed outcome of the Meeting reflected in the report, States parties decided to continue to address the issues related to the workload of the Commission and funding for its members as a matter of priority. They also called upon States parties whose experts were serving on the Commission to do their utmost to ensure the full participation of those experts in the work of the Commission, in accordance with the Convention. In the agreed outcome, States parties were called upon to contribute voluntarily to the trust fund, with a view to facilitating the participation of the members of the Commission from developing States in the meetings of the Commission. To facilitate a comprehensive review by States parties, the latter requested the Secretariat to prepare an update of the note contained in document SPLOS/157,[3] on the basis of the discussions at the nineteenth Meeting and any further information provided by States parties and observers, and in due time before the next Meeting. Finally, they decided that the bureau of the nineteenth Meeting would facilitate an informal working group to continue consideration of the issues related to the workload of the Commission, and that the Meeting would take up those issues at its twentieth Meeting, to be held in 2010.

10. Regarding the allocation of seats on the Commission and the Tribunal, the Meeting approved the "Arrangement for the allocation of seats on the International Tribunal for the Law of the Sea and the Commission on the Limits of the Continental Shelf" (SPLOS/201).

11. The Meeting also held an exchange of views under the agenda item entitled "Report of the Secretary-General under article 319 of the United Nations Convention on the Law of the Sea" (see paras. 103-116 of document SPLOS/203).

C. Informal consultations of States parties to the United Nations Fish Stocks Agreement

12. The eighth round of informal consultations of States parties to the United Nations Fish Stocks Agreement was held at United Nations Headquarters from 16 to 19 March 2009, to consider, inter alia, promoting a wider participation in the Agreement through a continuing dialogue, in particular with developing States, and initial preparatory work for the resumption of the Review Conference.[4]

13. The continuing dialogue addressed the following five main topics: promoting a wider participation in the Agreement; the relationship between the Agreement and the Convention, as well as other international instruments; capacity-building; compatibility of conservation and management measures; and cooperation in

[3] Note by the Secretariat on issues related to the workload of the Commission on the Limits of the Continental Shelf.

[4] The report of the eighth round of informal consultations is available on the website of the Division for Ocean Affairs and the Law of the Sea at www.un.org/depts/los/.

enforcement and port State measures. A panel of experts introduced each topic and participants engaged in fruitful discussions and developed a deeper understanding of the various issues.

14. As regards the initial preparatory work for the resumption of the Review Conference, the eighth round of informal consultations recommended that the General Assembly should request the Secretary-General to: (a) convene a ninth round of informal consultations of States parties to the Agreement for a duration of two days to serve primarily as a preparatory meeting for the resumed Review Conference;[5] and (b) prepare, in cooperation with the Food and Agriculture Organization of the United Nations, the updated comprehensive report referred to in paragraph 32 of Assembly resolution 63/112, taking into account the specific guidance proposed by the eighth round of informal consultations of States parties to the Agreement, and make available an advance unedited version of the report, in accordance with past practice, on the website of the Division for Ocean Affairs and the Law of the Sea.

III. Maritime space

A. Overview of recent developments regarding State practice, maritime claims and the delimitation of maritime zones

15. The present section provides information on developments that have been brought to the attention of the Secretariat of the United Nations. The national legislation acts, maritime boundary delimitation treaties, including the lists of geographical coordinates of points, as well as relevant communications received by the Secretariat are published in the *Law of the Sea Bulletin*, Nos. 68 to 70.

16. On 5 August 2008, the Treaty on Delimitation of the Territorial Seas of Singapore and Indonesia in the Strait of Singapore of 25 May 1973 was registered with the Secretariat of the United Nations.[6]

17. On 12 August 2008, Denmark transmitted the Decree on the Coming into Force of the Act on the Delimitation of the Territorial Sea for the Faroe Islands (Decree No. 240 of 30 April 2002), the Decree to Amend the Decree on the Fishing Territory of the Faroe Islands (Decree No. 241 of 30 April 2002), and the Executive Order on the Delimitation of the Territorial Sea of the Faroe Islands (Executive Order No. 306 of 16 May 2002).

18. On 6 February 2009, Seychelles transmitted the Agreement between the Government of the Republic of Mauritius and the Government of the Republic of Seychelles on the Delimitation of the Exclusive Economic Zone between the Two States of 29 July 2008.

19. On 19 March 2009, Qatar and Saudi Arabia jointly registered the Joint Minutes dated 5 July 2008 on the land and maritime boundaries to the Agreement of 4 December 1965 between the State of Qatar and the Kingdom of Saudi Arabia on the delimitation of the offshore and land boundaries of 4 December 1965.[7] The Joint

[5] The ninth round is tentatively planned for March 2010.

[6] Registration no. I-45144. Date of entry into force: 29 August 1974.

[7] Registration no. I-30249.

Minutes and the two maps attached thereto complemented the 1965 Agreement. On 17 June 2009, the United Arab Emirates transmitted a communication concerning these Joint Minutes.

20. On 14 April 2009, the Secretariat received the "Memorandum of Understanding between the Government of the Republic of Kenya and the Transitional Federal Government of the Somali Republic to grant to each other no-objection in respect of submissions on the outer limits of the continental shelf beyond 200 nautical miles to the Commission on the Limits of the Continental Shelf".

21. On 12 May 2009, the Democratic Republic of the Congo transmitted to the Secretary-General its Law delimiting the maritime areas of the Democratic Republic of the Congo (Law No. 09/002 of 7 May 2009).

22. On 24 June 2009, the United Republic of Tanzania transmitted to the Secretariat the Agreement it had concluded with the Republic of Kenya on the Delimitation of the Maritime Boundary of the Exclusive Economic Zone and the Continental Shelf on 23 June 2009.

23. On 10 July 2009, Namibia transmitted to the Secretariat a Memorandum of Understanding between Namibia and South Africa on the Submission of their Respective Claims for an Extended Continental Shelf to the Commission on the Limits of the Continental Shelf which had entered into force on 1 June 2009.

B. Deposit and due publicity

24. On 10 December 2008, Myanmar deposited, pursuant to article 16, paragraph 2, of the Convention, a list of geographical coordinates of points defining straight baselines for the Preparis and CoCo Islands, as contained in the Law Amending the Territorial Sea and Maritime Zones Law of 5 December 2008 (The State Peace and Development Council Law No. 8/2008). In connection with the deposit by Myanmar, a communication was also received from the Government of Bangladesh, dated 6 July 2009.

25. On 11 December 2008, the Bahamas deposited, pursuant to article 47, paragraph 9, of the Convention, a list of geographical coordinates of points defining the archipelagic baselines, as contained in the Archipelagic Waters and Maritime Jurisdiction (Archipelagic Baselines) Order, 2008 (Order S.I. No. 107 of 2008), issued under Section 3 (2) of the Archipelagic Waters and Maritime Jurisdiction Act, 1993, accompanied by an illustrative map.

26. On 26 February 2009, the United Arab Emirates, which signed the Convention, deposited, pursuant to article 16, paragraph 2, of the Convention, a list of geographical coordinates of points defining straight baselines, as contained in decision No. 5/2009 of the United Arab Emirates Ministerial Council with respect to the Application of Straight Baselines System to a Part of the Coast of the United Arab Emirates.

27. On 11 March 2009, Indonesia deposited, pursuant to article 47, paragraph 9, of the Convention, a list of geographical coordinates of points of the Indonesian Archipelagic Baselines based on the Government Regulation of the Republic of Indonesia No. 38 of 2002, as amended by the Government Regulation of the Republic of Indonesia No. 37 of 2008.

28. On 20 March 2009, Seychelles deposited, pursuant to article 16, paragraph 2; article 47, paragraph 9; and articles 75 and 84, of the Convention, a list of geographical coordinates of points identifying normal and archipelagic baselines from which the breadth of the territorial sea is measured, as contained in Schedules 1 and 2 of S.I. 88 of 2008, Maritime Zones (Baselines) Order, 2008; and a list of geographical coordinates of points defining the outer limits of the exclusive economic zone and continental shelf, as contained in S.I. 89 of 2008, Maritime Zones (Exclusive Zone and Continental Shelf) Order, 2008.

29. On 1 April 2009, the Philippines deposited, pursuant to article 47, paragraph 9, of the Convention, a list of geographical coordinates of points as contained in Republic Act No. 9522: An Act to Amend Certain Provisions of Republic Act No. 3046, as Amended by Republic Act No. 5446, to Define the Archipelagic Baselines of the Philippines, and for Other Purposes. In connection with the deposit by the Philippines, a communication was received from China, dated 13 April 2009, and from Viet Nam, dated 8 May 2009.[8]

30. On 5 May 2009, Seychelles deposited, pursuant to article 16, paragraph 2, and article 47, paragraph 9, of the Convention, lists of geographical coordinates of points identifying normal and archipelagic baselines from which the breadth of the territorial sea is measured, as contained in Schedules 1 and 2 of Maritime Zones (Baselines) Order, 2008 (S.I. 88 of 2008), as amended by Maritime Zones (Baselines) (Amendment) Regulations, 2009 (S.I. 35 of 2009).

31. On 14 May 2009, Cuba deposited, pursuant to article 75, paragraph 2, of the Convention, a list of geographical coordinates of points as contained in Decree-Law No. 266 on the outer limits of the exclusive economic zone of the Republic of Cuba in the Gulf of Mexico.

32. On 20 May 2009, Mexico deposited, pursuant to article 76, paragraph 9, of the Convention, a chart and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured in respect of the Western Polygon in the Gulf of Mexico. According to the coastal State, "the outer limit of the continental shelf of Mexico in the western area of the Gulf of Mexico beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured is established in conformity with the recommendations of the Commission on the Limits of the Continental Shelf and [is] in concordance with the 'Treaty between the Government of the United Mexican States and the Government of the United States of America on the delimitation of the continental shelf in the Western Gulf of Mexico beyond 200 nautical miles', signed on 9 July 2000".

33. The latter deposit was the first one made by a coastal State under article 76, paragraph 9, of the Convention, based on the recommendations of the Commission (see para. 47). Due publicity to these outer limits were given through a Maritime Zone Notification[9] and the website of the Division.

34. On 5 August 2009, France deposited, pursuant to article 75, paragraph 2, of the Convention, the list of geographical coordinates of points defining the outer limits

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[8] The texts of these communications are available at: www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/PHL.htm.

[9] M.Z.N.72.2009.LOS of 8 June 2009.

of the exclusive economic zone of Tromelin Island and Réunion Island, including the geographical coordinates as contained in the Agreement between France and Madagascar on the delimitation of maritime zones between Réunion Island and Madagascar of 14 April 2005.[10]

35. Furthermore, on 20 March 2009, a communication was received from the United Kingdom of Great Britain and Northern Ireland dated 19 March 2009, concerning the deposit by Mauritius of charts and the lists of geographical coordinates of points representing the basepoints and defining the baselines from which the maritime zones of Mauritius shall be measured, as contained in the "Regulations made by the Prime Minister under sections 4, 5 and 27 of the Maritime Zones Act 2005"; together with an illustrative map entitled "Chagos Archipelago: Archipelagic Baselines".[11] In connection with that communication, as well as the deposit by the United Kingdom of the list of geographical coordinates of points defining the outer limits of a zone adjacent to the territorial sea of the British Indian Ocean Territory, known as the "Environment (Protection and Preservation) Zone", established for that Territory by Proclamation No. 1 of 17 September 2003,[12] a communication from Mauritius was received on 9 June 2009.[13]

36. On 5 August 2009, a communication was also received from France concerning the deposit by Mauritius of a chart entitled "Tromelin: basepoints".

C. Geographic Information System facilities

37. As indicated in previous reports of the Secretary-General, there is a compelling need for information on maritime limits both from a single, authoritative source and in digital format, as demonstrated by requests addressed to the Division from States and from programmes, funds and agencies of the United Nations system.[14] The Division has continued its efforts to develop and enhance its Geographic Information System (GIS) services to Member States both in the context of its support to the Commission and in the performance of the depositary functions of the Secretary-General under the Convention in relation to charts and lists of geographical coordinates of points concerning the baselines closing lines, archipelagic baselines, and outer limits of maritime zones, including lines of delimitation. Further progress has been made in the development, in cooperation with the International Hydrographic Organization (IHO) and States, of a maritime zones layer in the IHO S-100 standard, which will enable the Division to structure its geographic information database according to the specifications of that layer. Among the benefits of a single authoritative source of information in digital format based on an internationally endorsed standard, are reduced costs to all parties involved due, notably, to the elimination of the need to re-input and re-project data.

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[10] Entry into force: 21 August 2007.

[11] A/63/63/Add.1, para. 21.

[12] A/59/62/Add.1, para. 49.

[13] The texts are available at: www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/MUS.htm.

[14] See also A/63/63/Add.1, chapter III, section C.

D. Commission on the Limits of the Continental Shelf

38. The Commission held its twenty-second session from 11 August to 12 September 2008, the resumed part of its twenty-second session from 1 to 12 December 2008 and its twenty-third session from 2 March to 9 April 2009.[15] The outcome of the twenty-fourth session of the Commission (10 to 21 August 2009 and 8 to 11 September 2009) will be presented in the report of the Secretary-General on oceans and the law of the sea to the sixty-fifth session of the General Assembly.

1. Consideration of the submission made by France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland

39. During the twenty-second session, the Subcommission continued its examination of the joint submission and met with the delegations of the four coastal States, presenting to them its views and general conclusions, particularly on the revised outer limits they submitted on 17 June 2008.

40. During the twenty-third session, the Subcommission submitted to the Commission on 20 March 2009 the text of the "Recommendations of the Commission on the Limits of the Continental Shelf in regard to the joint submission made by France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland in respect of the area of the Celtic Sea and the Bay of Biscay on 19 May 2006". The Chairman of the Subcommission introduced the recommendations to the Commission on 23 March. The following day, the Commission held a meeting with the delegations of the four coastal States, at their request, in accordance with paragraph 15 (1 bis) of annex III to the rules of procedure of the Commission.[16] The Commission adopted the recommendations by consensus on 24 March. Pursuant to article 6, paragraph 3, of annex II to the Convention, the recommendations, including a summary thereof, were submitted in writing to the four coastal States and to the Secretary-General. The summary of the recommendations has also been posted on the website of the Division.[17]

2. Consideration of the submission made by Norway

41. During the twenty-second session, the Subcommission continued its examination of the submission and met with the delegation of Norway, presenting its views and general conclusions on certain areas of the submission.

42. During the twenty-third session, the Subcommission held further meetings with the delegation of Norway and presented its "Preliminary considerations regarding certain issues in the Loop Hole in the Barents Sea, the Western Nansen Basin in the Arctic Ocean, and the Banana Hole in the Norwegian and Greenland Seas". On 13 March 2009, the Subcommission submitted to the Commission the

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[15] The plenary parts of the twenty-second and twenty-third sessions were held from 18 to 29 August 2008 and from 23 March to 3 April 2009, respectively. The periods from 11 to 15 August and from 2 to 12 September (twenty-second session) and the periods from 2 to 20 March and from 6 to 9 April (twenty-third session) were used for the technical examination of submissions at the GIS laboratories and other technical facilities of the Division. More details on the work of the Commission at its twenty-second, resumed twenty-second and twenty-third sessions are contained in the statements of the Chairman on the progress of work (CLCS/60 and CLCS/62).

[16] CLSC/40/Rev.1.

[17] www.un.org/Depts/los.

"Recommendations of the Commission on the Limits of the Continental Shelf in regard to the submission made by Norway in respect of areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea on 27 November 2006". On 23 March, the Chairman and other members of the Subcommission introduced the recommendations by delivering a series of presentations to the plenary of the Commission. On 25 March, the Commission held a meeting with the delegation of Norway, at the request of the delegation, in accordance with paragraph 15 (1 bis) of annex III to the rules of procedure.[18] After having examined the text of the recommendations prepared by the Subcommission, the Commission adopted it, with amendments, by consensus on 27 March. Pursuant to article 6, paragraph 3, of annex II to the Convention, the recommendations, including a summary thereof, were submitted in writing to Norway and to the Secretary-General. The summary has also been posted on the website of the Division.[19]

3. Consideration of the submission made by France

43. During the twenty-second session, the Subcommission continued its examination of the submission and met with the delegation of France, presenting its views and general conclusions on certain areas of the submission.

44. The Subcommission continued its work during both the intersessional period and the twenty-third session and considered, inter alia, additional information provided by France. The Subcommission agreed to finalize draft recommendations concerning the part of the submission in respect of the area of New Caledonia. The Subcommission also agreed that the part of the submission in respect of the area of French Guiana needed further analysis by France.

45. The Subcommission met with the delegation of France, which requested the Subcommission to elaborate further on its conclusions and to postpone the preparation of the recommendations. The submitting State and the Subcommission had agreed to exchange views and further information during the intersessional period and, subsequently, during the twenty-fourth session.

4. Consideration of the submission made by Mexico

46. During the twenty-second session, the Subcommission began its consideration of the partial submission made by Mexico and decided that its members would continue to work individually on the submission during the intersessional period.

47. During the twenty-third session, on 20 March 2009, the Subcommission submitted to the Commission the text of the "Recommendations of the Commission on the Limits of the Continental Shelf in regard to the submission made by Mexico in respect of the Western Polygon in the Gulf of Mexico on 13 December 2007". On 24 March, the Chairman of the Subcommission introduced the recommendations to the Commission. On 31 March, the Commission held a meeting with the delegation of Mexico, at the request of the delegation, in accordance with paragraph 15 (1 bis) of annex III to the rules of procedure.[20] The Commission adopted the recommendations by consensus on 31 March. Pursuant to article 6, paragraph 3, of annex II to the Convention, the recommendations, including a summary thereof,

[18] See note 16.
[19] See note 17.
[20] See note 16.

were submitted in writing to Mexico and to the Secretary-General.[21] The summary of the recommendations has also been posted on the website of the Division.[22]

5. Consideration of the submission made by Barbados

48. At its twenty-second session, the Commission began its consideration of the submission made by Barbados on 8 May 2008. The submission was presented at the plenary meeting on 26 August 2008 by Leonard Nurse, Barbados' Special Envoy for the Environment, Leader of Barbados' Continental Shelf Project Management Team and head of the delegation, and by Mervyn Gordon, Senior Manager, Barbados National Oil Company Limited.

49. The Commission decided that the submission would be addressed through the establishment of a subcommission. The Commission, however, decided not to establish the subcommission at its twenty-second session.

50. At the twenty-third session, the Subcommission was established and elected Mr. Rajan as its Chairman and Mr. Oduro and Mr. Croker as Vice-Chairmen. At that session, the Subcommission began its examination of the submission. It then continued the examination of the submission during the resumed twenty-third session (3-7 August 2009) and also decided to hold further meetings during the twenty-fourth session.

6. Consideration of the submission made by the United Kingdom of Great Britain and Northern Ireland

51. At its twenty-second session, the Commission began its consideration of the submission made by the United Kingdom in respect of Ascension Island on 9 May 2008. The submission was presented at the plenary meeting on 27 August 2008 by Douglas Wilson, Assistant Legal Adviser of the Foreign and Commonwealth Office and head of the delegation, and Lindsay Parson, head of the Law of the Sea Group at the National Oceanography Centre in Southampton, United Kingdom.

52. The Commission decided that the submission would be addressed through the establishment of a subcommission. The Commission, however, decided not to establish the subcommission at the twenty-second session.

53. At the twenty-third session, the Subcommission was established and elected Mr. Awosika as its Chairman and Mr. Brekke and Mr. Jaafar as Vice-Chairmen. The Subcommission began its examination of the submission and decided to hold further meetings during the twenty-fourth session.

7. Consideration of the submission made by Indonesia

54. At its twenty-third session, the Commission began its consideration of the submission made by Indonesia in respect of the area of North West of Sumatra on 16 June 2008. The submission was presented at the plenary meeting on 24 March 2009 by Arif Havas Oegrosseno, Director-General for Legal Affairs and Treaties, Department of Foreign Affairs; Rudolf W. Matindas, Head of the National Coordinating Agency on Survey and Mapping; Ing Khafid, Technical Expert, National Coordinating Agency for Surveys and Mapping; and Yusuf Djajadihardja,

[21] See also paragraphs 32-33 above.

[22] See note 17.

Director of Technology for Natural Resources Inventory, Agency for Assessment and Application of Technology.

55. The Commission decided that, as provided for in article 5 of annex II to the Convention and in rule 42 of the rules of procedure, the submission would be addressed through the establishment of a subcommission. A discussion followed on the effect of establishing more than three active subcommissions and the practical difficulties with regard to the simultaneous availability of some members for the work of different subcommissions. The Commission decided to establish a subcommission, as an exception to the general rule limiting the number of active subcommissions to three, in order to ensure expediency and efficiency in the light of the large number of submissions received. The Subcommission met and elected Mr. Croker as its Chairman and Mr. Kalngui and Mr. Park as Vice-Chairmen. It began its examination of the submission and decided to hold further meetings during the twenty-fourth session.

8. Consideration of the submission made by Japan

56. At its twenty-third session, the Commission began its consideration of the submission made by Japan on 12 November 2008. The submission was presented at the plenary meeting on 25 March 2009 by Yukio Takasu, Permanent Representative of Japan to the United Nations; Kazuchika Hamuro, Ambassador, Permanent Mission of Japan to the United Nations; Asahiko Taira, Special Adviser, Chairman of the Advisory Committee to the Cabinet for the extension of the continental shelf; and Shin Tani, Cabinet Counsellor, Secretariat of the Headquarters for Ocean Policy, Cabinet Secretariat.

57. The Commission decided that, as provided for in article 5 of annex II to the Convention and in rule 42 of the rules of procedure of the Commission, the submission would be addressed through the establishment of a subcommission. The Commission, however, decided not to form the subcommission until one of the existing four subcommissions had submitted its recommendations to the plenary of the Commission.

58. The Commission also discussed the notes verbales that had been received from China, the Republic of Korea and Japan, with a view to providing guidance to the subcommission to be established to consider the submission. The Commission, acknowledging that it had no role in matters relating to the legal interpretation of article 121 of the Convention, decided that it would return to the matter when it was ready to proceed with the establishment of the subcommission and take into account any further developments that might occur during the intervening period.

9. Consideration of the joint submission made by Mauritius and Seychelles

59. At its twenty-third session, the Commission began its consideration of the joint submission made by Mauritius and Seychelles in respect of the Mascarene Plateau on 1 December 2008. The submission was presented at the plenary meeting on 26 March 2009 by Arvin Boolell, Minister for Foreign Affairs, Regional Integration and International Trade of Mauritius; Patrick Pillay, Minister for Foreign Affairs of Seychelles; Raymond Chang-Tave, Head of the Technical Committee of Seychelles; Aruna Narain, Assistant Solicitor-General, Attorney General's Office of Mauritius; Patrick Joseph, Exploration Manager, Seychelles Petroleum Company; and Jagdish Koonjul, Ambassador, Head of the Technical Committee of Mauritius.

60. The Commission decided that, as provided for in article 5 of annex II to the Convention and in rule 42 of the rules of procedure, the submission would be addressed through the establishment of a subcommission. The Commission, however, did not establish the subcommission for the consideration of the joint submission at the twenty-third session.

10. New submissions and workload of the Commission

61. A large number of submissions was received by the Commission in fulfilment of the requirements of article 4, annex II, to the Convention, as well as the decision contained in SPLOS/72, paragraph (a). These submissions will be examined by the Commission in the order in which they were received.[23] In addition, the Secretary-General received numerous sets of preliminary information, in accordance with paragraph 1 (a) of the decision of the Meeting of States Parties in document SPLOS/183.[24] As at 31 August 2009, the number of submissions and sets of preliminary information has reached, respectively, 51 and 44.[25]

IV. Bodies established by the United Nations Convention on the Law of the Sea

A. International Seabed Authority

62. The International Seabed Authority held its fifteenth session from 25 May to 5 June 2009. Discussions continued in the Council of the Authority on the draft regulations on prospecting and exploration for polymetallic sulphides in the Area. In the absence of an agreement on the provision regarding anti-monopoly and overlapping claims to potential mine sites in the Area, it was agreed that deliberations would continue at the sixteenth session of the Authority, to be held from 26 April to 7 May 2010. At that session, the Council will also have before it the draft regulations on prospecting and exploration for cobalt-rich ferromanganese crusts in the Area, which were adopted by the Legal and Technical Commission during the fifteenth session.[26]

63. The Legal and Technical Commission also adopted a set of new recommendations for the guidance of contractors for the reporting of actual and direct exploration expenditures as required by the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area. The new recommendations

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[23] Issues relating to the workload of the Commission are addressed under paras. 8 and 9 above.

[24] Decision regarding the workload of the Commission on the Limits of the Continental Shelf and the ability of States, particularly developing States, to fulfil the requirements of article 4 of annex II to the Convention, as well as the decision contained in SPLOS/72, paragraph (a).

[25] See SPLOS/INF22 and Corr.1 and 2, and SPLOS/INF22/Add.1. After the issuance of these documents, Vanuatu submitted a set of preliminary information on 10 August 2009. Details on all submissions received by the Commission and on preliminary information are available on the website of the Commission, respectively at: www.un.org/depts/los/clcs_new/commission_submissions.htm and www.un.org/Depts/los/clcs_new/commission_preliminary.htm.

[26] See statement of the President of the Council of the International Seabed Authority on the work of the Council during the fifteenth session, document ISBA/15/C/8.

promote the adoption of standardized and internationally recognized accounting practices.[27]

64. The Commission also reviewed the proposal, originally introduced in 2008, to establish a network of areas of particular environmental interest in the Clarion-Clipperton Fracture Zone in the Central Pacific Ocean. The proposal entails the designation of nine areas that would be protected from mining activity and used to assess the impacts of mining on the deep sea environment in other areas. In this connection, the Commission decided that the Authority should convene, as a priority activity, an international workshop to further review the proposal and to advise on the formulation of an environmental management plan at the regional level for the entire Clarion-Clipperton Fracture Zone.[28]

65. The Authority's Endowment Fund for Marine Scientific Research in the Area has attracted a wide range of proposals, providing qualified scientists and technical personnel from developing countries with opportunities to participate in international technical and scientific cooperation programmes.[29]

66. The Authority held three regional sensitization seminars and was planning others in the future, subject to the availability of funds. The Secretary-General of the Authority, at the nineteenth meeting of States Parties to the Convention, urged all States parties, who were also members of the Authority, to do their utmost to attend sessions of the Authority so as to fully participate in the work in progress.

B. International Tribunal for the Law of the Sea

67. On 6 March 2009, Mr. Jin-Hyun Paik (Republic of Korea) was elected a member of the Tribunal at a special Meeting of States Parties to the Convention. The election took place to fill the vacancy resulting from the demise of Judge Choon-Ho Park (Republic of Korea). Mr. Paik was sworn in as a member of the Tribunal on 16 March. Pursuant to article 6 of the Statute of the Tribunal, Judge Paik will hold office for the remainder of his predecessor's nine-year term, which ends on 30 September 2014.

68. On 17 March 2009, in order to facilitate the implementation of the decisions of the Tribunal in prompt release proceedings, the Tribunal amended articles 113, paragraph 3, and 114, paragraphs 1 and 3, of its Rules. As a result, the Tribunal now has the option to determine, in cases of prompt release of vessels and crews, that a bond or other financial security may be posted with the Registrar of the Tribunal or with a detaining State. Prior to the amendment, the Rules stipulated that a bond or other financial security was to be posted solely with the detaining State, unless the parties agreed otherwise.

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[27] See summary report of the Chairman of the Legal and Technical Commission on the work of the Commission during the fifteenth session, document ISBA/15/C/5.

[28] Ibid.

[29] See report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea, ISBA/15/A/2.

69. On 18 March 2009, the Tribunal modified the composition of the Chamber for Fisheries Disputes, the Chamber for Marine Environment Disputes and the Chamber for Maritime Delimitation Disputes.[30]

V. Developments relating to international shipping activities

A. Economics of shipping

70. Maritime transport is vital to the world economy. More than 80 per cent of international trade by volume is carried by sea. An even higher percentage of developing country trade is carried by ships. International seaborne trade in 2007 amounted to 8.02 billion tons of goods loaded, an increase of 4.8 per cent over 2006. Strong demand for shipping services resulting from the growth of the world economy in 2007 and rising oil prices increased shipping prices through the first quarter of 2008. More recently, the Baltic Dry Index[31] declined from 11,793 points in May 2008 to 2,612 (as at 12 August 2009) owing to the financial crisis. In addition, rising oil prices due to supply-demand constraints and other non-fuel-related factors,[32] as well as concerns about security and the environment, posed a great challenge for maritime seaborne trade and transport in 2008.[33]

71. The total world merchant fleet reached 1.12 billion deadweight tons at the beginning of 2008 with the total tonnage of oil tankers and bulk carriers representing 71.5 per cent, an increase of 7.2 per cent over 2007. The average age of the world fleet continued to drop marginally. At the beginning of 2008, the average age of the world fleet was 11.8 years, and container ships made up the youngest fleet, with an average of 9 years.

72. As a result of globalization, increased trade in intermediate goods, growth in consumption and production levels and expanding "containerizable" cargo base (e.g. agricultural cargoes are increasingly being transferred to containers given higher freight rates in the bulk sector and economies of scale in the container market), containerized trade is expected to continue growing significantly, accounting for an increasingly larger share of world dry cargo. Since 1990, container trade has increased by an average annual growth rate of 9.8 per cent. By May 2008, the world containership fleet had reached approximately 13.3 million twenty-foot equivalent units. Spurred by container trade growth, port container handling activity also expanded.

73. According to the United Nations Conference on Trade and Development (UNCTAD), economies of scale derived from the deployment of larger and more fuel-efficient ships on longer trade routes contribute to achieving greater fuel efficiency and related fuel cost savings, as well as CO_2 emissions reduction. For

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[30] See ITLOS/Press Nos. 131 to 134, available on the website of the Tribunal at: www.itlos.org.

[31] The Baltic Dry Index is a composite of shipping prices for various dry bulk products and is a useful indicator of price movements.

[32] Non-fuel-related factors may also influence freight rates, such as geography, time, trade volumes and imbalances, as well as economies of scale, the type and value of goods traded, insurance and crewing costs, quality of infrastructure, levels of competition and private sector participation in port operations.

[33] UNCTAD, *Review of Maritime Transport 2008* (United Nations publication, Sales No. E.08.II.D.26).

instance, a cargo ship over 8,000 deadweight tons (dwt) is estimated to emit 40 per cent less CO_2 than smaller ships (2,000-8,000 dwt). UNCTAD has also pointed out the possible impacts of global warming on international shipping routes and maritime transport costs.[34]

B. Safety of navigation

74. Safety of navigation is critically important for the international shipping industry and thus global seaborne trade. The international community, therefore, has continued to focus its attention on the safety of ships, transport of dangerous goods, hydrographic surveying and nautical charting and routes used for international navigation, as described below. Recent developments relating to seafarers and the prevention of criminal activities at sea are presented in chapters VI.A.1 and VII below.

1. Safety of ships

75. In December 2008 and June 2009, the International Maritime Organization (IMO) Maritime Safety Committee adopted a number of amendments to the International Convention for the Safety of Life at Sea and the 1988 Protocol to that Convention (see resolutions MSC.269(85), MSC.282(86) and MSC.283(86)). Other amendments adopted by the Committee included those related to the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (resolution MSC.270(85)), the International Code of Safety for High-Speed Craft, 2000 (resolution MSC.271(85)), the International Life-Saving Appliance Code (resolution MSC.272(85)) and the International Management Code for the Safe Operation of Ships and for Pollution Prevention (resolution MSC.273(85)).[35]

76. In addition, the IMO Maritime Safety Committee adopted the International Code on Intact Stability, 2008 (2008 IS Code) (resolution MSC.267(85)), together with relevant amendments to the International Convention for the Safety of Life at Sea and the 1988 Load Lines Protocol in order to provide for its mandatory application, as well as a circular regarding its early application. The amendments are expected to enter into force on 1 July 2010.

2. Transport of dangerous goods

77. In 2008, the IMO Maritime Safety Committee adopted the International Maritime Solid Bulk Cargoes Code and relevant amendments to the International Convention for the Safety of Life at Sea to provide for the mandatory application of the Code (resolution MSC.268(85)). They are expected to enter into force on 1 January 2011. The Code is aimed at facilitating the safe stowage and shipment of solid bulk cargoes.

78. In December 2008, the United Nations Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals adopted amendments to the fifteenth revised edition of the

[34] Ibid.

[35] For the texts of the Maritime Safety Committee resolutions, see the annexes to the reports of the eighty-fifth and eighty-sixth sessions of the Committee, MSC 86/26 and MSC 85/26, respectively.

Recommendations on the Transport of Dangerous Goods (Model Regulations).[36] The International Atomic Energy Agency (IAEA) published a number of safety standards on transport of radioactive materials, including the 2009 edition of the Regulations for the Safe Transport of Radioactive Material (Safety Standards Series No. TS-R-1), the Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material Safety Guide (Safety Standards Series No. TS-G-1.1 (Rev.1)), Management System for the Safe Transport of Radioactive Material (Safety Standards Series, No. TS-G-1.4) and Compliance Assurance for the Safe Transport of Radioactive Material (Safety Standards Series, No. TS-G-1.5).[37] In July 2009, a technical meeting was held to finalize the training package on compliance assurance in transport, the final action to be completed under the transport action plan. IAEA Nuclear Security Series No. 9, Security in the Transport of Radioactive Material, has also recently been published.[38]

79. In addition to IAEA resolution GC(52)/RES/9, adopted on 3 October 2008, and General Assembly resolution 63/111, adopted on 5 December 2008, IAEA engaged in several activities to enhance safety and security during the transport of radioactive materials. In October 2008, a meeting of relevant shipping States and coastal States, with the involvement of IAEA, was held in order to share concerns regarding the adequacy and application of safety standards, increase mutual understanding and build confidence. At a technical meeting in February 2009, a decision was made to revise the IAEA Safety Guide Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material (Safety Standards Series No. TS-G-1.2). In March 2009, past Transport Safety Appraisal Services reports were analysed with a view to promoting the good practices and improved further use by member States. Investigations into the synergies that might be achieved by integrating aspects of missions of Transport Safety Appraisal Services with transport audits of the International Civil Aviation Organization and IMO were initiated in February 2009.

80. With respect to denial and delay of shipment of radioactive materials,[39] participants of the Twelfth Congress of the International Radiation Protection Association, held in October 2008, indicated that shipments of radioactive material would continue to increase in the foreseeable future with the expected expansion of nuclear power and increases in the availability of nuclear medicine applications. IAEA, States and regional organizations have started to address this problem through dialogue and identification of actions to improve the situation. In Latin America and the Caribbean, the Montevideo Group has initiated a reporting system to identify specific instances of denial and delay of shipments and help focus corrective actions. Additional efforts are planned by the Group to help the international community identify how it can interact with carriers to improve their knowledge of these shipments and their willingness to accept them. Participants also indicated that a balance was needed in security requirements to ensure that

[36] ST/SG/AC.10/36.

[37] The IAEA safety standards series are available at www-ns.iaea.org/standards/documents/default.asp.

[38] Security in the Transport of Radioactive Material, IAEA Nuclear Security Series No. 9, is available at www-pub.iaea.org/MTCD/publications/PubDetails.asp?pubId=7987.

[39] See A/63/63/Add.1, paras. 57 and 58.

radioactive materials were adequately protected during transport without being disruptive or burdensome to the carrier operations.[40]

81. In January 2009, at its fourth meeting, the International Steering Committee on Denial of Shipment of Radioactive Material endorsed regional coordinators for Africa, Asia and the Pacific, Latin America and the Caribbean and the Mediterranean basin. The action plans of the Steering Committee and the regional networks were integrated into a single action plan, which improved use of the database on denials. Participants emphasized the need to provide the national focal points with the same level of information provided to the members of the Steering Committee and the regional coordinators. The Montevideo Group developed a methodology to determine the costs of denial and delay of shipment, which took into account key elements such as labour, equipment, materials, services and contingencies.[41]

3. Safe routes for international navigation

82. *Hydrographic surveying and nautical charting*. In June 2009, the IMO Maritime Safety Committee approved a detailed plan of work for an "e-navigation" strategy to be completed during 2012.[42] It also adopted amendments to chapter V of the International Convention for the Safety of Life at Sea concerning the carriage requirements for shipborne navigational systems and equipment in relation to electronic chart display and information systems.[43]

83. *Communication systems*. Global Navigation Satellite Systems (GNSS) provide a fast and accurate method for mariners to navigate, measure speed and determine location. The Third Meeting of the International Committee on GNSS was held in December 2008. The current workplan of the Committee includes compatibility and interoperability of GNSS systems; enhancement of performance of GNSS services; information dissemination and capacity-building; and interaction with national and regional authorities and relevant international organizations. The 2009 meeting of the Committee will be held in Saint Petersburg, Russian Federation.[44]

84. The International Satellite System for Search and Rescue (COSPAS-SARSAT) was created to reduce the time required to detect and locate distress events worldwide. In order to make the System more efficient, the satellite processing of distress signals from analogue emergency beacons was terminated on 1 February 2009. Users must switch to digital beacons if they wish to be detected by satellites.[45]

85. *Long-range identification and tracking (LRIT)*. Substantial progress has been made with respect to the implementation of the LRIT system. In December 2008, the IMO Maritime Safety Committee adopted two resolutions, which resulted in the appointment of the International Mobile Satellite Organization (IMSO) as the LRIT coordinator and confirmed that the United States would continue providing

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[40] Conclusions of the Twelfth Congress of the International Radiation Protection Association, paras. 273 and 274, available at www.irpa12.org.ar/index.php.

[41] www-ns.iaea.org/tech-areas/radiation-safety/denial-of-shipment.htm.

[42] MSC 85/26/Add.1, annex 20, MSC 86/23/4, MSC 86/26, para. 23.26 and A/63/63/Add.1, para. 61.

[43] Resolution MSC.282(86) contained in document MSC 86/26/Add.1, annex 1.

[44] United Nations Office for Outer Space Affairs contribution; see also www.icgsecretariat.org.

[45] Ibid., see also www.cospas-sarsat.org.

international LRIT data exchange services on an interim basis until 31 December 2011 (resolutions MSC.275(85) and MSC.276(85)). Amendments to the Convention on the International Mobile Satellite Organization were adopted in October 2008, establishing that, subject to the decision of the IMSO Assembly, IMSO may assume functions and/or duties of LRIT coordinator, at no cost to its parties, in accordance with the decisions of IMO and in a fair and consistent manner.[46] As of 1 January 2009, all Contracting Governments to the International Convention for the Safety of Life at Sea are required to implement the LRIT system. Some LRIT data centres are still undergoing testing and it is expected that they will be fully integrated into the LRIT system before 30 September 2009. In June 2009, the IMO Maritime Safety Committee decided on a number of other actions to facilitate the LRIT system's smooth implementation.[47]

86. *Ships routing and reporting systems.* Amendments to the General Provisions on Ships' Routeing (resolution A.527(14), as amended) to align them with the specifications for boundary symbology and charting of archipelagic sea lanes adopted by IHO, were adopted by the IMO Maritime Safety Committee in December 2008 (resolution MSC.280(85)). The Committee also adopted a number of new and amended traffic separation schemes, routing measures other than traffic separation schemes, and new and amended ship reporting systems aimed at enhancing safety of navigation in areas of identified navigational hazards and environmentally sensitive sea areas.[48] For instance, amendments were adopted to the existing ship reporting system for the Papahānaumokuākea Marine National Monument in the area of the north-western Hawaiian Islands, a particularly sensitive sea area[49] (see also para. 291).

87. In addition, at its fifty-fifth session, the IMO Subcommittee on Safety of Navigation approved several traffic separation schemes, routing measures other than traffic separation schemes and mandatory ship reporting systems for submission to the IMO Maritime Safety Committee in 2010 with a view to their adoption.[50]

88. *Straits used for international navigation.* With respect to the Cooperative Mechanism established by States bordering the Straits of Malacca and Singapore (the Straits) and user States pursuant to the Kuala Lumpur Meeting on Enhancement of Safety, Security and Environmental Protection in the Straits of Malacca and Singapore, held in September 2006,[51] various developments occurred in the Cooperation Forum, the Project Coordination Committee and the Aids to Navigation Committee. In particular, progress was made in the implementation of the six projects presented at the 2006 Kuala Lumpur meeting, notably an assessment survey of 51 aids to navigation in the traffic separation schemes in the Straits.[52] At its meetings in October 2008 and April 2009, the Aids to Navigation Fund Committee of the Cooperative Mechanism considered various issues relating to the maintenance of aids to navigation. The Committee will meet again in October 2009.[53]

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[46] IMSO contribution.
[47] MSC 86/26, paras. 6.7-6.109; MSC 86/26, paras. 6.46-6.85; and IMO contribution.
[48] MSC 85/26, annexes 14-17.
[49] Resolution MSC.279(85) and contribution of IMO. See also A/63/63, para. 317.
[50] NAV 55/WP.8, paras. 3.32-3.52.
[51] A/62/66, paras. 55-56.
[52] C 101/SR.5.
[53] C 102/14/2, paras. 3-11.

89. A number of user States and other stakeholders made substantial contributions to the Aids to Navigation Fund. Progress has also been made in the completion of an informal joint technical arrangement between IMO and the States bordering the Straits on the use of the IMO Malacca and Singapore Straits Fund for the Safety of Navigation and Environmental Protection in Straits of Malacca and Singapore under the Cooperative Mechanism.[54] Contributions from the IMO Fund to the Aids to Navigation Fund and the projects under the Cooperative Mechanism could be disbursed after completion and signature of the joint technical arrangement.

90. During the eighty-sixth session of the IMO Safety Committee, held in 2009, Singapore, supported by Indonesia and Malaysia, expressed concerns over the safety risks imposed by ships anchoring within the traffic separation schemes and precautionary areas in the Straits of Malacca and Singapore, as well as between the landward limits of the traffic separation schemes and approaches to the ports. The States bordering the Straits were developing measures to increase the awareness by user States in this regard.[55]

C. Implementation and enforcement

91. While flag States have primary responsibility for ensuring the effective implementation and enforcement of international rules and standards, port and coastal States play a fundamental and complementary role in the light of the failure of some flag States to exercise effective control over their vessels.[56] In this regard, compliance mechanisms, such as audit programmes, performance reviews and joint inspection campaigns, help to ensure that flag State duties and responsibilities are effectively implemented and enforced. The following section provides information on recent developments within IMO in relation to implementation and enforcement, while developments within other organizations and entities, including the International Labour Organization (ILO), FAO, the United Nations Office on Drugs and Crime and the Counter-Terrorism Committee Executive Directorate, are presented in chapters VI, VII and IX.

92. The 2005 Code for the Implementation of Mandatory IMO Instruments provides the audit standard for the Voluntary IMO Member State Audit Scheme, which has been widely recognized as a necessary component for the further enhancement of maritime safety and pollution prevention.[57] As at June 2009, 50 member States of IMO and one associate member have volunteered to be audited and 31 audits have been completed. In addition, IMO held four regional training courses for auditors during 2008 and four more courses were planned for 2009. The IMO Council has encouraged Member States that have not yet volunteered for audits to do so as early as possible and has invited Member States to nominate auditors for selection on audit teams and for participation in related training courses convened by IMO.[58]

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[54] C 102/D, para. 14.4.

[55] MSC 86/26, para. 25.14.

[56] See the 2008 annual Shipping Industry Flag State Performance Table of the Round Table of international shipping associations at www.marisec.org/flag-performance/FlagStatePerformanceTable08.pdf. See also Promoting IMO and ILO Treaty Ratification at www.marisec.org/ratification.

[57] C 102/6.

[58] C 102/D. See also C 101/D. The second consolidated audit summary report, which contains findings on the non-conformities and observations identified during nine audits conducted in 2007, is contained in C 101/6/2. See also A/63/63/Add.1, paras. 70-71.

93. In July 2009, the IMO Council agreed to a phased-in introduction of the Audit Scheme as an institutionalized, mandatory scheme, and approved, in principle, a five-year time frame and schedule of activities to that end. In December 2009, the Council will consider a draft resolution on the way forward, together with a proposed time frame and schedule for the further development of the Audit Scheme, with a view to its submission to the IMO Assembly for adoption in November 2009. Institutionalization of the Audit Scheme would proceed through the introduction of appropriate requirements in the relevant mandatory IMO instruments.[59]

94. In June 2009, the IMO Maritime Safety Committee adopted a number of measures to enhance the implementation of IMO instruments, including guidance on the survey and certification of compliance of ships with the requirement to transmit information under the LRIT (see para. 85 above).[60] In addition, the list of parties to the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers deemed to be giving full and complete effect to its provisions was updated to reflect a report on those countries that had completed independent evaluations.[61] A number of resolutions were adopted by the IMO Maritime Safety Committee in connection with the conduct of surveys. In July 2009, the IMO Marine Environment Protection Committee adopted amendments to the survey guidelines under the harmonized system of survey and certification for the revised annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) (see para. 242 below).[62]

95. In the context of efforts to improve port State control, the IMO Maritime Safety Committee considered development of guidance on port facility security audits and reviewed the experience of IMO member States on the implementation of existing IMO guidance on voluntary self-assessment by Contracting Governments of the International Convention for the Safety of Life at Sea and by port facilities, and guidance on basic elements of national oversight programmes for chapter XI-2 of the Convention and the International Ship and Port Facility Security Code.[63] The IMO Marine Environment Protection Committee adopted revised guidelines for port State control under the revised MARPOL 73/78 annex VI.[64]

96. In order to increase the efficient use of resources and information, participating States continued to coordinate activities in the context of regional port State control organizations,[65] including through joint concentrated inspection

[59] C 102/D and C 102/6/1. See also C 101/D and C 101/6/1 and para. 273 below.

[60] MSC 86/26, MSC 86/26/Add.1 and MSC.1/Circ.1307.

[61] MSC 86/26.

[62] Report of the IMO Marine Environment Protection Committee on its fifty-ninth session, MEPC 59/24; report of the IMO Subcommittee on Flag State Implementation to the IMO Maritime Safety Committee and the IMO Marine Environment Protection Committee, FSI 17/20, annex 3.

[63] MSC 86/26. See also MSC.1/Circ.1194 on effective implementation of SOLAS chapter XI-2 and the ISPS Code and MSC.1/Circ.1192 on guidance on voluntary self-assessment by SOLAS Contracting Governments and by port facilities.

[64] MEPC 59/24; FSI 17/20, annex 1.

[65] There are currently nine regional port State control organizations covering the world's oceans.

campaigns.[66] Some flag States' ships have been targeted for inspection in more than one port State control region, and have shown improved performance.[67] In this regard, the secretariat of IMO has encouraged port States to provide it with information on concentrated inspection campaigns conducted on the International Safety Management Code in order to compile all relevant data with a view to processing the data for a global analysis.[68]

D. Maritime casualties and incidents

97. In June 2009, the IMO Maritime Safety Committee established a formal safety assessment[69] group of experts to review formal safety assessment studies on cruise ships, roll-on roll-off passenger ferries, liquefied natural gas carriers and containerships that had been previously submitted to the Committee. After review by the group of experts, an update of the formal safety assessment study on general cargo ships, led by the International Association of Classification Societies (IACS), will be submitted to the Committee in 2010. In this regard, the Committee emphasized that the study should investigate the root causes of casualties on general cargo ships. Member Governments and international organizations were encouraged to make their casualty databases available and provide further information to assist IACS with the formal safety assessments.

98. The IMO Subcommittee on Flag State Implementation continued its work on the Global Integrated Shipping Information System module on casualties. It noted with concern that the analyses of casualties showed the following safety issues as possible trends that needed to be addressed: procedures and practices, inter alia, in connection with the safety management system and the International Safety Management Code, collisions and groundings in connection with bridge resource management, bridge team management, voyage planning and single watchkeeper on bridge, fatigue, pilot assistance and steering gear failures. The Subcommittee agreed to bring these safety issues to the attention of administrations so that they could be highlighted in future investigation reports.[70] The Subcommittee also agreed to bring to administrations' attention the need to ensure that casualty investigation reports fully comply with the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident.[71]

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[66] For example, a joint concentrated inspection campaign on safety of navigation and SOLAS chapter V was conducted by the Paris Memorandum of Understanding on Port State Control (Paris MOU) and the Memorandum of Understanding on Port State Control in the Asia Pacific Region (Tokyo MOU) between 1 September and 30 November 2008 (see IMO website: www.imo.org/home.asp). See also A/63/63, para. 195, and A/62/66, para. 61.

[67] Flag Administrations targeted by the Paris MOU, Tokyo MOU and the United States, FSI 17/INF.5; FSI 17/20.

[68] FSI 17/20.

[69] More information regarding formal safety assessments is available at www.imo.org/TCD/mainframe.asp?topic_id=351.

[70] FSI 17/20, paras. 6.15-6.17.

[71] A/63/63/Add.1, para. 75.

E. Wreck removal

99. The number of abandoned wrecks worldwide has reportedly increased and, with it, problems for coastal States and shipping in general. The Nairobi International Convention on the Removal of Wrecks, 2007, provides the legal basis for States to remove, or have removed, from their exclusive economic zones, wrecks that may pose a hazard to navigation or to the marine environment.[72] The Convention remained open for signature until 18 November 2008.[73] It will enter into force 12 months following the date on which 10 States have either signed it without reservation as to ratification, acceptance or approval or have deposited instruments of ratification, acceptance, approval or accession with the Secretary-General of IMO.[74]

100. In its resolution 63/111, the General Assembly invited States to consider becoming parties to the Wreck Removal Convention and requested States to take appropriate measures with regard to ships flying their flag or of their registry to address hazards that might be caused by wrecks and drifting or sunken cargo to navigation or the marine environment (paras. 86 and 87).

101. The Baltic Marine Environment Protection Commission reported that a new recommendation on compensation and liability questions recommended ratification of a number of international conventions, including the Wreck Removal Convention, in order to create a harmonized compensation and liability regime in the Baltic. The recommendation was expected to be finalized and adopted by the Commission at its Ministerial Meeting in May 2010.[75]

102. In April 2009, the IMO Legal Committee considered the development of a single model compulsory insurance certificate under existing maritime liability conventions, as requested by the International Conference on the Removal of Wrecks in 2007, and established a correspondence group to, inter alia, analyse the legal and practical advantages and disadvantages of a mandatory versus a non-mandatory model certificate.[76]

VI. People at sea

A. Seafarers and fishers

1. Seafarers

103. IMO decided that the World Maritime Day theme for 2010 would be the "Year of the Seafarer". The Secretary-General of IMO noted that the world's 1.5 million seafarers faced unique hazards, including pirate attacks (see paras. 119 and 120 below), unwarranted detention and abandonment. The theme complements the "Go to Sea!" campaign of IMO to attract new entrants to the shipping industry, which

[72] See also A/63/63/Add.1, paras. 78-79 and A/62/66/Add.1, paras. 74-76.

[73] See "Status of multilateral conventions and instruments in respect of which the International Maritime Organization or its Secretary-General performs depositary or other functions, as at 31 December 2008" (see www.imo.org/includes/blastDataOnly.asp/data_id%3D25891/Status-2008.pdf).

[74] See articles 17 and 18 of the Wreck Removal Convention.

[75] Contribution of the Commission.

[76] Report of the Legal Committee on the work of its ninety-fifth session, LEG 95/10.

was launched in November 2008 in association with ILO, the round table of shipping industry organizations and the International Transport Workers' Federation.[77] The current global shortfall of officers in the global shipping fleet has been estimated at about 34,000, with the shortfall projected to reach 83,900 based on the existing rate of increase of officer supply and fleet growth projections. The campaign calls on Governments, industry and IMO, supported by ILO and other international organizations, to take specific actions to increase the recruitment of seafarers.[78]

104. The ILO Maritime Labour Convention, 2006, has been ratified by five major flag States and by ILO members, representing nearly 45 per cent of the world's gross tonnage, and ILO anticipates that the Convention will enter into force in 2011.[79] Following two meetings of tripartite experts in September 2008, ILO adopted guidelines that provide practical advice to port State control officers verifying compliance of foreign ships with the requirements of the Convention. ILO also adopted guidelines for flag State inspections under the Convention, which provide practical advice on how to carry out ship inspections and certifications to verify compliance with the requirements of the Convention.[80]

105. The comprehensive review of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, and the Seafarers' Training, Certification and Watchkeeping Code is well under way in IMO and is targeted to be completed before the diplomatic conference in June 2010.[81] Also under review by IMO are principles for establishing the safe manning levels of ships including mandatory requirements for determining safe manning, with a target completion date of 2010.[82]

106. In March 2009, the Joint IMO/ILO Ad Hoc Expert Working Group on Liability and Compensation regarding Claims for Death, Personal Injury and Abandonment of Seafarers agreed to develop a comprehensive mandatory international mechanism to provide for the basic humanitarian needs of seafarers abandoned in foreign ports through an amendment to the ILO Maritime Labour Convention.[83] Proposed draft amendments to the Convention, covering the provision of financial security in case of abandonment of seafarers and treatment of contractual claims, will be submitted to the IMO Legal Committee in October 2009 and the November 2009 session of the Governing Body of ILO, for consideration. During the ninety-fifth session of the Legal Committee (30 March-3 April 2009), concern was expressed that, in view of the highly volatile nature of the current economy, the number of cases of abandonment would continue to increase in number and severity until market conditions changed. The Committee instructed IMO and ILO to remind Governments of IMO resolution A.930(22) concerning guidelines on provision of financial security in case of abandonment of seafarers and to further urge its

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[77] IMO Press Briefing No. 24, 3 July 2009.

[78] IMO Press Briefing No. 53, 17 November 2008.

[79] See www.ilo.org/global/About_the_ILO/Media_and_public_information/Feature_stories/lang--en/WCMS_103260/index.htm.

[80] See www.ilo.org/global/What_we_do/InternationalLabourStandards/MaritimeLabourConvention/lang--en/index.htm.

[81] MSC 86/26, paras. 9.3-9.9. For the preliminary draft revised text of the Convention and Code, see STW 40/14, annexes 1 to 3.

[82] MSC 86/26, paras. 9.10 and 23.24.

[83] LEG 95/10, para. 4.4.

voluntary implementation, as well as resolution A.931(22) concerning guidelines on shipowners' responsibilities in respect of contractual claims for personal injury to, or death of, seafarers.

107. The fair treatment of seafarers in the event of a maritime accident was also addressed by the Legal Committee at its ninety-fifth session. The Committee considered an updated study prepared by the Baltic and International Maritime Council on cases involving the use of criminal sanctions against seafarers, which confirmed that the practice was a global problem. The Committee agreed that the "Guidelines on fair treatment of seafarers in the event of a maritime accident" (resolution LEG.3(91), annex) and the Code of International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident, should be strictly applied by States so that a proper balance could be achieved between the need on the one hand for a thorough investigation of maritime accidents and on the other hand for the protection of the rights of seafarers.[84]

2. Fishers

108. Both ILO and FAO have drawn attention to the need to improve the safety of fishers.[85] In 1999, ILO estimated that 24,000 fatalities occurred worldwide each year in capture fisheries. The main reason for accidents in the fisheries sector was human error, rather than the design and construction of unsafe boats.

109. In November 2008, FAO convened an expert consultation on best practices for safety at sea in the fisheries sector, which provided guidance to FAO regarding the development of guidelines for best practices. The experts were of the opinion that improved safety and health of fishers should be achieved through the development of national strategies, and that the guidelines should ensure a holistic approach so that all factors influencing safety were comprehensively covered.[86]

110. In March 2009, the FAO Committee on Fisheries considered the outcome of the expert consultation and supported the development of guidelines on best practices for safety at sea. Some delegations also supported the development of an international plan of action on safety in the fisheries sector (see also para. 179 below).[87]

B. International migration by sea

111. Worldwide, perilous journeys by sea undertaken by people to clandestinely cross borders continue to result in loss of life. The scale of clandestine migration by sea is revealed in part by the statistics of the United Nations High Commissioner for Refugees (UNHCR) concerning the Mediterranean and Gulf of Aden. The number of arrivals of people who sought to migrate clandestinely in 2008 and 2007, respectively, were as follows: Greece — 15,300 and 19,900; Italy — 36,000 and 19,900; Malta — 2,700 and 1,800; Spain — 13,400 and 18,000; and Yemen —

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[84] Ibid., paras. 5.1-5.19.

[85] A/63/63/Add.1, para. 84.

[86] FAO, report of the expert consultation on best practices for safety at sea in the fisheries sector, Rome, 10-13 November 2008, *FAO Fisheries and Aquaculture Report No. 888*, Rome, 2009, p. 25.

[87] FAO, report of the twenty-eighth session of the FAO Committee on Fisheries, Rome, 2-6 March 2009, *FAO Fisheries and Aquaculture Report No. 902*, Rome, 2009, pp. vii and x, para. 19.

50,000 and 29,500. UNHCR reported 1,594 persons to be dead or missing in 2008, compared with 2,390 in 2007. The latter number is presumed to be much higher since many people may have died during the course of their journeys by sea. Some countries have provided IMO with statistics regarding rescue operations and persons rescued in the Mediterranean. In 2008, Italy and Spain reported that they had rescued 34,827 and 10,581 people at sea, respectively.[88] Malta reported that in 2008 it had coordinated some 600 rescue operations and nearly 3,000 persons had been disembarked in that country.[89]

112. Other regions of the world are also faced with challenges arising from clandestine migration. In 2009, there were reports of loss of life or people missing at sea associated with journeys by boat to North America using routes through the Caribbean,[90] boats destined for Australia leaving from Indonesia and Malaysia,[91] and the departure of Rohingya people from Bangladesh and Myanmar.[92] UNHCR has expressed concern about the international protection needs of people in connection with action by authorities in some States to remove people who arrived by sea or to return people to their point of departure.[93]

113. There are continuing efforts within IMO to address the legal and policy framework regarding the rescue of persons in distress at sea and stowaways. In January 2009, the Facilitation Committee authorized the issuance of a circular (FAL.3/Circ.194) identifying five essential principles that IMO member Governments should incorporate into their administrative procedures for disembarking persons rescued at sea in order to harmonize the procedures and make them efficient and predictable. The principles address, inter alia, coordination among national authorities, cooperation in respect of disembarkation, cooperation to facilitate the return or repatriation of rescued persons and international protection principles. Some member States reserved their positions on the decisions of the Committee and on the issue of the circular.[94]

114. At its session in 2010, the IMO Subcommittee on Radiocommunications and Search and Rescue will be considering two proposals referred to it by the IMO Maritime Safety Committee that had been submitted to the IMO Subcommittee on Flag State Implementation.[95] Spain and Italy had proposed to amend paragraph 1.1 of the International Convention for the Safety of Life at Sea regulation V/33 and paragraph 3.1.9 of the annex to the International Convention on Maritime Search and Rescue, so that the disembarkation of persons rescued at sea could be carried out without putting at risk their safety and the safety of the crew that rescued them.[96] Malta proposed amending the aforementioned provisions of the two conventions to

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[88] FSI 17/15/1, para. 3.

[89] MSC 86/26, para. 13.20.

[90] BBC Alert, 22 May 2009. Source: Caribbean Media Corporation.

[91] BBC Alert, 29 June 2009. Source: Radio Australia.

[92] See www.unhcr.org/cgi-bin/texis/vtx/search?page=search&docid=4975b4e44&query=rohingya.

[93] UNHCR Briefing Notes dated 20 January 2009, "Thailand: UNHCR requests access to Rohingya boat people", and Press Release, 7 May 2009, "UNHCR deeply concerned over returns from Italy to Libya".

[94] FAL 35/17, paras. 6.31-6.63.

[95] Both subcommittees have "Measures to protect the safety of persons rescued at sea" on their agendas. See COMSAR 13/14, paras. 10.1-10.13, FSI 17/20, paras. 15.1-15.12, and MSC 86/26, paras. 8.26 and 13.19-13.20.

[96] FSI 17/15/1.

ensure that disembarkation occurred in the nearest safe haven, namely a port closest to the location of the rescue that may be deemed as a place of safety.[97]

115. IMO has recently undertaken extensive efforts to establish an adequate search and rescue infrastructure in Africa. Four regional maritime rescue coordination centres, located in Cape Town, Lagos, Mombassa and Monrovia, have been equipped and are operational, and a number of maritime regional sub-centres have also been established. There are plans to establish the fifth rescue coordination centre, in Morocco, and additional regional sub-centres in Africa.[98]

116. With respect to stowaways, the number of such cases reported to IMO has increased moderately, from 244 (involving 657 stowaways) in 2006 to 252 (involving 889 stowaways) in 2007. In 2008, however, the incidence of stowaway cases rose dramatically, with 494 cases involving 2,052 stowaways reported to IMO.[99]

117. At its meeting in January 2009, the Facilitation Committee noted that two regimes appeared to coexist in relation to stowaways. The first regime was established by the IMO Assembly in its resolution A.871(20) adopting, in 1997, the "Guidelines on the allocation of responsibilities to seek the successful resolution of stowaway cases". The second regime was established through the incorporation of some of the provisions of the Guidelines in the 2002 amendments to the annex to the Convention on the Facilitation of International Maritime Traffic, which entered into force on 1 May 2003. Having also noted that the Guidelines made no reference to the provisions of chapter XI-2 of the International Convention for the Safety of Life at Sea or the International Ship and Port Facility Code, the Committee decided to review and update the Guidelines. The Committee approved a draft Assembly resolution regarding the application of the two regimes and a proposed timetable for its and the IMO Maritime Safety Committee's revision of the Guidelines.[100]

VII. Maritime security

118. The ninth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, which focused on maritime security and safety, illustrated the need for further cooperation and coordination in the field of maritime security. In this regard, the General Assembly, in its resolution 63/111, recognized the crucial role of international cooperation at the global, regional, subregional and bilateral levels in combating, in accordance with international law, threats to maritime security.[101,102]

A. Piracy and armed robbery against ships

119. The number of committed and attempted acts of piracy and armed robbery against ships reported to IMO during 2008 totalled 306, representing an increase of

[97] FSI 17/15/2.
[98] MSC 86/26, paras. 14.2-14.5.
[99] FAL.2/Circs. 102, 108 and 113.
[100] FAL 35/17, paras. 6.1-6.29 and annex 3.
[101] Para. 61.
[102] See also A/64/66, paras. 127-138.

24 cases (8.5 per cent) over 2007. In the first six months of 2009 alone, the number of actual or attempted attacks reported to IMO totalled 238, as compared with 121 in the first six months of 2008.[103] The areas affected were East Africa (153 incidents), South China Sea (36), South America (22), West Africa (20), the Indian Ocean (10), the Arabian Sea (1) and the Persian Gulf (1).[104] Most of the attacks involved weapons, including guns and knives. In fact, the number of attacks involving the use of guns has risen dramatically to 151 in the first six months of 2009, as compared with 39 for the equivalent period in 2008. Seafarers, who suffer the immediate impacts of such attacks, are increasingly victims of violence at the hands of their attackers. In the first six months of 2009, 561 seafarers were taken hostage, 7 kidnapped, 19 assaulted, 6 killed and 8 are missing.[105]

120. According to the International Maritime Bureau (IMB), a significant majority of these incidents have occurred off the coast of Somalia (148). A total of 30 vessels were hijacked off the coast of Somalia during the first six months of 2009. During this period, 495 seafarers were taken hostage, 6 were injured, 4 killed and 1 remains missing. As at 30 June 2009, 11 vessels and 178 seafarers were still being held for ransom. While the majority of the attacks off the coast of Somalia continue to take place in the Gulf of Aden (86) and Southern Red Sea (14) area, there have also been an increasing number of attacks off the eastern and southern coasts of Somalia (44). Moreover, suspected pirates have attacked vessels far out at sea by using "mother ships" to launch attacks by smaller vessels. All types of vessels have been targeted, often by well-armed criminals with rocket-propelled grenades and automatic weapons.[106]

121. The surge in incidents of piracy off the coast of Somalia over the past two years has contributed to unprecedented cooperation among States to combat crimes at sea, at both the global and regional levels. This cooperation has been undertaken pursuant to, inter alia, five Security Council resolutions adopted in 2008 specifically addressing the situation of piracy off the coast of Somalia,[107] as well as relevant General Assembly resolutions on oceans and the law of the sea.[108] In addition to Governments and intergovernmental organizations, the shipping industry and seafarer organizations have also taken measures to address piracy and armed robbery against ships.

122. It is important that all States that have not yet done so adopt legislation to combat piracy and armed robbery against ships.[109] Article 100 of the Law of the Sea Convention requires that "[a]ll States shall cooperate to the fullest possible extent in the repression of piracy on the high seas or in any other place outside the jurisdiction of any State". Other relevant provisions of the Convention include article 105. As the secretariat of the Convention, the Division for Ocean Affairs and the Law of the Sea has a mandate to provide information and advice to States and

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[103] See reports on acts of piracy and armed robbery against ships issued by the IMO secretariat, MSC.4/Circs.130, 133 and 134-138.

[104] Ibid.

[105] See IMB, Piracy and Armed Robbery Against Ships, Report for the Period 1 January-30 June 2009, pp. 10-11.

[106] Ibid., pp. 20-21.

[107] See Security Council resolutions 1814 (2008), 1816 (2008), 1838 (2008), 1846 (2008) and 1851 (2008).

[108] Most recently, General Assembly resolution 63/111.

[109] General Assembly resolution, paras. 63-64.

intergovernmental organizations on the uniform and consistent application of the provisions of the Convention, including those relevant to the repression of piracy.

123. The IMO secretariat is currently undertaking a review of national legislation on piracy,[110] based on information received from member States, and plans to submit a synopsis of the replies to the IMO Legal Committee in October 2009 to facilitate an assessment of the legal situation, in particular regarding the capture, prosecution and extradition of alleged offenders. In this connection, the secretariat placed on its work programme for the 2010-2011 biennium the item entitled "Advice and guidance to support: (a) the review of IMO instruments on combating piracy and armed robbery; (b) international efforts to ensure effective prosecution of perpetrators; and (c) availability of information on comprehensive national legislation and judicial capacity-building".[111] Over the past year, a number of States have reviewed and updated their counter-piracy legislation, including Belgium, France, Italy, Japan, Kenya and Spain.

124. In order to reflect the most up-to-date experiences in combating piracy and armed robbery against ships, the IMO Maritime Safety Committee updated, in June 2009, its advice contained in two circulars, entitled "Recommendations to Governments for preventing and suppressing piracy and armed robbery against ships" and "Guidance to shipowners and ship operators, shipmasters and crews on preventing and suppressing acts of piracy and armed robbery against ships".[112] In the light of the difficult situation faced by seafarers taken hostage during incidents, the Committee decided to annex to the latter circular an extract from the Department of Safety and Security of the United Nations Secretariat guidelines on surviving as a hostage.[113] The Committee strongly discouraged the carrying and use of firearms for personal protection or the protection of a ship, but noted that the use of privately contracted armed security personnel, as well as the use of military or other law enforcement officers on board merchant ships, was a matter for flag States to determine in consultation with shipowners, companies and ship operators.[114] A revised version of the 2001 IMO Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery Against Ships will be submitted to the IMO Assembly for approval in late 2009.[115]

125. The International Christian Maritime Association has adopted a resolution urging States and international bodies, including ILO and IMO, to work together to establish a resource centre for shipowners, seafarers and fishers on the availability of specialized counselling, medical care and other appropriate services for victims of piracy and armed robbery at sea.[116]

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[110] IMO member States have been asked to submit copies of their national legislation together with any pertinent information they may have about their domestic laws aimed at combating piracy and armed robbery against ships and prosecuting the perpetrators of such acts. Responses have already been received from a number of countries.

[111] LEG 95/10, para. 8.12.

[112] MSC.1/Circ.1333, available at www.imo.org/includes/blastDataOnly.asp/data_id%3D25884/1333.pdf, and MSC.1/Circ.1334, available at www.imo.org/includes/blastDataOnly.asp/data_id%3D25885/1334.pdf.

[113] Ibid.

[114] MSC 86/26, paras. 18.30, 18.55-18.65.

[115] Ibid., para. 18.80 and annex 23.

[116] www.icma.as/?page_id=852.

126. The Contact Group on Piracy off the Coast of Somalia, which was established pursuant to Security Council resolution 1851 (2008) and includes 28 States and 6 international organizations,[117] has been playing an important role as a forum for coordinating the efforts of various States and organizations to address the situation in Somalia. Since its establishment on 14 January 2009, the Contact Group has held two meetings, in March and May 2009, and will hold another meeting in September 2009. Through its four Working Groups,[118] the Contact Group has allowed for information-sharing and coordination among States and entities involved in combating piracy and armed robbery of ships off the coast of Somalia. At its meeting in May 2009, the Contact Group adopted shipping industry best management practices to deter piracy in the Gulf of Aden and off the coast of Somalia, which had been agreed upon by the representatives of 11 shipping industry organizations.[119] At the same meeting, the Bahamas, Liberia, the Marshall Islands and Panama signed the New York Declaration, in which they committed themselves to promulgating internationally recognized best management practices and requiring all vessels that fly their flags to take self-protection measures in compliance with the International Ship and Port Facility Security Code.[120]

127. A number of States are patrolling the waters off the coast of Somalia to repress acts of piracy. They are cooperating with the Transitional Federal Government of Somalia to repress acts of piracy and armed robbery at sea in accordance with the provisions of the relevant Security Council resolutions.[121] Measures have been taken to improve communication between naval and coast guard vessels and commercial vessels transiting through the area, including through the Maritime Security Centre (Horn of Africa) of the European Union[122] and the IMB.[123] In February 2009, the Centre established an internationally recommended transit corridor, subsequently recognized by IMO, to protect shipping through the Gulf of Aden area.[124] According to IMB, the increased patrolling off the coast of Somalia combined with increased adherence with applicable advice by ship masters and the deployment of effective anti-piracy measures has resulted in a dramatic drop in the percentage of attempted attacks. Warships and other duly authorized Government vessels operating off the coast of Somalia have deterred, prevented and stopped a number of attacks. In the process, a number of suspected pirates have been apprehended.[125] Despite this progress, however, and as indicated in paragraph 120 above, piracy and armed robbery regrettably continue to be rampant off the coast of Somalia. A sustainable solution to the problem must be sought in the broader

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[117] For a list of countries and organizations participating in the Contact Group, see www.state.gov/r/pa/prs/ps/2009/05/123584.htm.

[118] Working Group 1 focuses on military and operational coordination, information-sharing and the establishment of the regional coordination centre; Working Group 2 on legal aspects of piracy; Working Group 3 on shipping self-awareness and other capabilities; and Working Group 4 on improving diplomatic and public information efforts on all aspects of piracy.

[119] This document was subsequently considered by the IMO Maritime Safety Committee and annexed to circular MSC.1/Circ.1332.

[120] Statement of the third meeting of the Contact Group on Piracy off the Coast of Somalia, 29 May 2009.

[121] See note 107 and S/2009/146.

[122] www.mschoa.eu.

[123] www.icc-ccs.org/index.php?option=com_content&view=article&id=27&Itemid=16.

[124] SN.1/Circ.281.

[125] See IMB, Piracy and Armed Robbery Against Ships, Report for the Period 1 January-30 June 2009, pp. 20-28.

context of efforts by the international community to address the overall political and security situation in Somalia.

128. The prosecution of suspected pirates and armed robbers is important for deterring future attacks and contributes to respect for the rule of law on the oceans and seas. A number of prosecutions of suspected pirates have begun or are expected to begin in the near future, including in France, Kenya, the Netherlands and the United States. Kenya, in particular, has accepted 100 suspected perpetrators for prosecution, including through its transfer arrangements with the European Union, the United Kingdom and the United States. In some cases, however, practical and legal issues relating to both national law and evidentiary requirements have made prosecution difficult, leading to the release of suspected pirates. Through its Working Group 2, which focuses on legal aspects of piracy, the Contact Group is exploring issues related to the prosecution of suspected offenders.[126] In July 2009, the Netherlands hosted an informal workshop to explore the possibility of establishing an international judicial mechanism to prosecute suspected pirates.[127]

129. A number of United Nations entities and other organizations have been providing assistance to States in the repression of piracy off the coast of Somalia. For example, IMO has begun a broad-based capacity-building effort in the region to assist States in the implementation of the Djibouti Code of Conduct concerning the Repression of Piracy and Armed Robbery against Ships in the Western Indian Ocean and the Gulf of Aden, adopted on 29 January 2009.[128] The United Nations Office on Drugs and Crime is implementing a joint programme with the European Union to provide targeted support to Kenyan prosecution, police, judicial and prison services, and which aims to support, inter alia, the conduct of piracy trials in conformity with international standards. The core elements of this programme include legislative review, prosecutorial support, provision of logistical support and information technology, and the development and sharing of regional expertise. The Office is seeking to extend these capacity-building measures to other countries in the region willing to undertake piracy prosecutions and will also provide technical support to Somalia.[129] The International Criminal Police Organization (INTERPOL) has begun collecting information on suspected pirates to assist in information-sharing by police authorities in its 187 member States.[130] The United Nations Interregional Crime and Justice Research Institute, within the framework of its public/private partnership initiative, has designed a counter-piracy programme on the basis of the findings of the Stakeholders Meeting on Maritime Piracy in Somali Coast, which it organized in January 2009.[131] At the request of the Secretary-General, the Legal Counsel of the United Nations travelled to Kenya in July 2009 to promote, inter alia, the efforts of the United Nations to assist States in the prosecution of suspected pirates and armed robbers. The Department of Political Affairs of the Secretariat (through the United Nations Political Office for Somalia) and the United Nations

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[126] Statement of the third meeting of the Contact Group on Piracy off the Coast of Somalia, 29 May 2009.

[127] www.clingendael.nl/cscp/events/20090708/20090708_speech_needandevoc.pdf.

[128] See www.imo.org/About/mainframe.asp?topic_id=1773&doc_id=10933. See also A/64/66, paras. 131 and 173.

[129] UNODC contribution.

[130] See Piracy and Armed Robbery Against Ships, Report for the Period 1 January-30 June 2009, p. 33.

[131] UNICRI contribution.

Development Programme (UNDP) are also providing assistance to States in the region in connection with their roles in addressing the broader situation in Somalia.

B. Illicit traffic in narcotic drugs and psychotropic substances

130. The illicit traffic in narcotic drugs and psychotropic substances by sea continues to be a serious challenge for Governments and law enforcement agencies around the world. In March 2009, the Commission on Narcotic Drugs, at a special high-level segment, adopted the Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem. In that Declaration, Governments agreed to take additional steps to present a coordinated and coherent response to trafficking in narcotic drugs and psychotropic substances by land, air and sea, in partnership with United Nations entities and international partners, so as to close jurisdictional gaps in the investigation, interdiction and prosecution of drug traffickers. They also agreed to ensure that commercial port operations were supported by drug law enforcement authorities with adequate resources, equipment, training and legal powers to effectively screen, evaluate and examine commercial freight and sea-bound containers and also ensure that relevant international agencies provide technical assistance to requesting States in this regard. Governments further agreed to review national legislation, as appropriate, to ensure compliance with the legal requirements of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, as well as to promote the exchange of information among competent authorities regarding drug trafficking by sea, through regional and subregional cooperation and to define the liability and responsibilities of various shipping structures and strengthen cooperation with professional trade associations, consistent with existing international mechanisms and in accordance with their national legislation.[132]

C. Terrorist acts against shipping and offshore installations and other maritime interests

131. The IMO Legal Committee placed the item "Advice and guidance on issues as may be requested in connection with implementation of the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation 1988/2005 in the context of international efforts to combat terrorism and proliferation of Weapons of Mass Destruction and related materials" on its work programme for the 2010-2011 biennium. Although the 2005 Protocols to that Convention are not yet in force, the Committee considered that issues of implementation could be anticipated so as to assist States considering ratification.[133] IMO also continued work on the implementation of long-range identification and tracking (see para. 85 above).

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[132] Commission on Narcotic Drugs, Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem, E/2009/28.

[133] LEG 95/10, para. 8.12.4.

132. In April 2009, the Government of Japan notified IMO, in accordance with article 15 of the Suppression of Unlawful Acts Convention, of an incident that occurred on the high seas in the vicinity of Antarctica.[134]

133. The Counter-Terrorism Committee Executive Directorate assists States in the implementation of the existing 16 counter-terrorism instruments, including the Suppression of Unlawful Acts Convention and its Protocol, as well as their 2005 Protocols, through the organization of capacity-building programmes and the provision of technical assistance. It also promotes the effective implementation of the International Convention for the Safety of Life at Sea and the International Ship and Port Facility Security Code. The Executive Directorate is responsible for, inter alia, making available and regularly updating a directory of international best practices, codes and standards and a directory of assistance.[135] The United Nations Office on Drugs and Crime, together with the S. Rajaratnam School of International Studies in Singapore, organized a regional workshop for States members of the Association of Southeast Asian Nations on "Developing an integrated approach to maritime security through the counter-terrorism conventions, criminal and international law: legal perspectives, capacity-building" in June 2009.[136]

D. Proliferation of nuclear, chemical and biological weapons

134. In its resolution 1874 (2009), the Security Council, reaffirming that proliferation of nuclear, chemical and biological weapons, as well as their means of delivery, constitutes a threat to international peace and security, called upon States to take a number of measures to prevent the transfer of such weapons or materials to or from the Democratic People's Republic of Korea by sea. In particular, it called upon all Member States to inspect vessels, with the consent of the flag State, on the high seas, if they had information that provided reasonable grounds to believe that the cargo of such vessels contained items the supply, sale, transfer or export of which was prohibited by paragraph 8 (a), (b) or (c) of Security Council resolution 1718 (2006) or by paragraphs 9 or 10 of Security Council resolution 1874 (2009), for the purpose of ensuring strict implementation of those provisions.[137]

135. The Office for Disarmament Affairs of the Secretariat reported on the contributions of the Security Council Committee established pursuant to Security Council resolution 1540 (2004)[138] to maritime security, which included the organization of a series of regional workshops on non-proliferation. It highlighted the importance of the implementation and the entry into force of relevant international agreements, such as the 2005 Protocols to the Suppression of Unlawful Acts Convention and its Protocol.[139]

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[134] IMO Circular letter No. 2959.

[135] Contribution of the Counter-Terrorism Committee Executive Directorate.

[136] www.rsis.edu.sg/.

[137] Security Council resolution 1874 (2009), para. 12. Some other provisions of the resolution relate to the inspection of suspect cargo in port (para. 11), cooperation with inspections (para. 13) and provision of bunkering services (para. 17).

[138] Resolution 1540 (2004) concerns the proliferation of nuclear, chemical and biological weapons, as well as their means of delivery.

[139] Office of Disarmament Affairs contribution.

VIII. Marine science and technology

136. Much progress has been achieved in marine science and technology to address, in particular, a growing number of questions and concerns requiring a multidisciplinary scientific approach (e.g. climate change, sustainable use of marine biological diversity and conservation of ecosystems). In addition to ocean observing programmes and the development of GIS, a growing number of large-scale scientific research projects have been organized. These projects exemplify current efforts to study the marine environment from a wider perspective and their benefits include better monitoring and forecasting of climate change and variability, as well as the establishment and operation of tsunami warning systems.

A. Marine science

1. Ocean observing programmes

137. *Global Ocean Observing System*. Ocean observations and science programmes have been critical in building the knowledge base on climate change. IOC has continued developing the Global Ocean Observing System in partnership with the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Council for Science.[140] The global module of the Global Ocean Observing System is at the same time the ocean component of the Global Climate Observing System, which serves the sustained observing needs of the United Nations Framework Convention on Climate Change and the Global Earth Observation System of Systems initiative.[141] Much of the implementation of the Global Ocean Observing System takes place through the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology.

138. By 2009, the total open-ocean observing system reached 61 per cent of its goal. The goals set for the global networks for drifters and Argo floats (see paras. 141-143 below) have already been achieved (see also A/63/63/Add.1, para. 104).[142] The number of sea level stations has also increased.[143] More than 260 sea level stations now report observations in real time or near real time, thus also benefiting regional tsunami and hazard warning systems (see also paras. 152-153 below) and the maritime industry. The sustainability of the Global Ocean Observing System, as well as the production of the delivery/services from the observations, has been supported by the integrated and interoperable data management and user portal systems, which are jointly developed by the Joint WMO-IOC Technical Commission and the International Oceanographic Data and Information Exchange, an IOC programme (see also paras. 144-148 below).

139. In addition to its interactions with the Data and Information Exchange, the Global Ocean Observing System provides the framework for its Scientific Steering Committee on Implementation of Harmful Algal Bloom Monitoring. The Scientific

[140] Report by the IOC Executive Secretary on programme implementation, document IOC-XXV/2, annex 1, 24 May 2009.

[141] Progress report on the implementation of the Global Observing System for Climate in support of the UNFCCC 2004-2008 (GOOS-173) submitted to the thirtieth session of the Subsidiary Body for Scientific and Technological Advice (June 2009).

[142] IOC contribution.

[143] Ibid.

Steering Committee of the Global Ecology and Oceanography of Harmful Algal Blooms Programme launched a new core research project to develop cooperative regional research that would deliver improved understanding and modelling capabilities of harmful marine algal events.[144]

140. At its session in June 2009, the IOC Assembly adopted resolution XXV-12 on a Programme of Action for GOOS 2010-2011, in which it highlighted the importance of the climate module of the Global Ocean Observing System (see para. 137), in anticipation of the future improved delivery of climate services as one outcome of the World Climate Conference (31 August-4 September 2009), and the need for existing and future ocean observation systems to support the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects (the "regular process") (see also paras. 365-367). In September 2009, the ocean observation conference OceanObs'09, the theme of which is "Ocean observation for society: sustaining the benefits, realizing the potential",[145] will provide participants an opportunity to discuss ocean observation needs in the fields not currently covered by existing systems, for example, biology, biogeochemistry, carbon and nutrients.[146]

141. *Argo Programme*. The Argo Information Centre provides, inter alia, a real-time monitoring system of all Argo profiling floats and ensures open access to resulting data and metadata.[147] Close to 3,300 Argo profiling floats are now in operation worldwide, measuring temperature and salinity between the surface and 2,000 metres water depth. More than 100 Argo floats are equipped with dissolved oxygen sensors and this number is growing rapidly (see also A/64/66/Add.2, para. 29). Although some technical issues are still being resolved, scientists from the European Union have proposed conducting, as part of the OXYWATCH (Towards Global Observatories for Oxygen Depletion) project, a large experiment in the Eastern equatorial Atlantic, off the coast of Africa, which would use 50 to 100 profiling floats equipped with O_2 sensors, gliders and atmospheric sampling to map the low-O_2 tongue in the region. These floats would also assess the interactions between deep-sea O_2 and the distribution of O_2 on the continental shelf.[148] In the area of coverage, the pilot project would, inter alia: (a) assist in detecting changes in ocean biogeochemistry and climate; (b) aid prediction and assessment of anoxic or hypoxic events; (c) aid interpretation of variations in ocean circulation/mixing; and (d) determine transport and regional air-sea fluxes of oxygen.

142. IOC has characterized the Argo Programme, which comprises contributions from 23 different countries,[149] as the most collaborative programme in the history of oceanography.[150] Recently, Gabon became the first African State to participate in Argo through cooperative arrangements with the United States.[151]

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[144] Document IOC-XXV/2, annex 1.

[145] See www.oceanobs09.net/goals/index.php.

[146] IOC-XXV/2, annex 1, para. 14.

[147] As requested by the IOC in its resolution XX-6 on the Argo Project. See A/63/63/Add.1, para. 105.

[148] Report of the ninth meeting of the International Argo Steering Team (18-20 March 2008). For further developments relating to the programme, see www.imber.info/C_WG_SubGroup2.html.

[149] For more information on the collaborative programme, see www.argo.ucsd.edu/Organisation.html.

[150] IOC contribution.

[151] Ibid.

143. As noted by IOC, all deployments of profiling floats were systematically notified by national Argo programmes, via the Argo Information Centre centralized web-based system, to the Argo national focal points.[152] In this regard, the Centre will assist the national Argo programmes in meeting the requirements established in IOC resolution EC XLI.4 entitled "Guidelines for the implementation of Resolution XX-6 of the IOC Assembly regarding the deployment of profiling floats in the high seas within the framework of the Argo Programme".[153] The Guidelines include provisions for the notification procedure, which can be undertaken by the Argo Information Centre with the express agreement of the coastal State that has requested to be notified under the Guidelines (see also para. 149 below).[154]

2. International Oceanographic Data and Information Exchange

144. The International Oceanographic Data and Information Exchange is supporting the development of the Global Ocean Observing System and the international scientific programmes of IOC and WMO by providing advice and ocean data management services. Today, many of the Exchange's 65 data centres (national oceanographic data centres or designated national agencies) manage operational data in real time and provide user services. In addition, the Exchange is a partner in the WMO Integrated Global Observing System, a pilot project for the Joint IOC-WMO Technical Commission on Oceanography and Marine Meteorology. This project aims, inter alia, to make oceanographic data available in real time and delayed mode through interoperability arrangements between the WMO Information System and the Ocean Data Portal of the Exchange.[155]

145. The International Oceanographic Data and Information Exchange has focused its work on five areas: (a) establishment of the ocean data standards pilot project; (b) establishment of the ocean data portal project as an IOC contribution to the Global Earth Observation System of Systems); (c) implementation of the IOC Strategic Plan for Oceanographic Data and Information Management;[156] (d) completion of the Ocean Data and Information Network for Africa project; and (e) further development of ocean data and information networks in all ocean regions. With regard to the latter, the networks for the Caribbean and South America and for European countries in economic transition were continued successfully. New networks were established for the Western Pacific region and the Pacific Islands Marine Resources Information System.[157]

146. At the twentieth session of the IOC Committee on International Oceanographic Data and Information Exchange, held in May 2009, it was reported that the fourth and final phase of the Network for Africa had been approved with funding from Belgium. The capacity-building strategy of the International Oceanographic Data and Information Exchange, implemented through the ocean data and information network projects for Africa and the Caribbean and South America, substantially increased the capacity of the participating countries.[158] The capacity-building

[152] Ibid.

[153] Ibid.

[154] Resolution EC XLI.4, para. 3.

[155] Report of the twentieth session of the IOC Committee on the International Oceanographic Data and Information Exchange; document IOC/IODE-XX-3, available at iode.org/iode20.

[156] IOC Assembly resolution XXIV-9.

[157] IOC contribution.

[158] Ibid.

activities of the International Oceanographic Data and Information Exchange include the development of the African Marine Atlas and a pilot project for the Caribbean Marine Atlas.[159]

147. The Exchange also participates in the OceanTeacher Academy (a project funded by Belgium), which will provide an annual teaching programme of courses related to oceanographic data and information management.

148. In its resolution XXIV-3, the IOC Assembly decided, inter alia, to continue and strengthen ocean data and information network projects in all regions and the Ocean Data Portal Pilot Project of the International Oceanographic Data and Information Exchange, as a mechanism for integrating marine data from a number of distributed sources both in the network of national oceanographic data centres and from other participating systems. In addition, recognizing that the Ocean Biogeographic Information System programme within the IOC will serve as a valuable source of information, inter alia, for Diversitas, an international biodiversity research programme, as well as the United Nations Educational, Scientific and Cultural Organization Man and the Biosphere Programme and the UNESCO Strategy for Action on Climate Change, the IOC Assembly decided, in its decision XXV-4, to adopt the Information System into the International Oceanographic Data and Information Exchange framework.

3. Law of the sea and marine scientific research

149. *IOC Advisory Body of Experts on the Law of the Sea.* At its ninth session (30 March-3 April 2009), the Advisory Body resumed its discussions relating to the work of the "Sub-Group on the IOC legal framework within the context of the United Nations Convention on the Law of the Sea which is applicable for the collection of oceanographic data". It discussed the implementation of IOC resolution EC-XLI.4 (see para. 143 above).[160] Delegations highlighted the need for IOC to maintain and circulate an up-to-date list of those States which have requested to be informed of the deployment of an Argo float that may drift into their exclusive economic zone. The Advisory Body also exchanged views on whether additional practical guidelines might be needed on other aspects identified in IOC Assembly resolution XXIII.8, namely the deployment of floats and surface drifting buoys in exclusive economic zones; and deployment of expendable bathythermographs by ships of opportunity in exclusive economic zones. The Advisory Body agreed that there was no need for specific guidelines on the deployment of Argo floats in exclusive economic zones and that such deployments were best considered within the framework of bilateral cooperation and agreements. The Advisory Body also agreed that no specific guidelines for the deployment of expendable bathythermographs by ships of opportunity in the exclusive economic zone were necessary. Subsequently, the Advisory Body concluded that it had completed its work under the terms of reference of the sub-group.

150. The Advisory Body also continued its work under the sub-group on the practice of Member States in the application of parts XIII and XIV of the Law of the Sea Convention and was provided an update on the 2005 analysis, prepared by the Coordinator of the sub-group.[161] In June 2009, the IOC Assembly adopted

[159] Ibid.

[160] See A/63/63/Add.1.

[161] IOC/ABE-LOS VIII/8.

resolution XXV-1, in which the Advisory Body was requested to pursue its work under the sub-group, noting the recommendations[162] made by the Advisory Body in that regard, including on the development of conclusions from the available data and information. The Assembly also requested the Executive Secretary to seek IOC member States' views on whether additional work was necessary to follow up on the revision of *Marine Scientific Research: a Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea* (see para. 151 below).[163]

151. *Revision of Marine Scientific Research: a Guide to the Implementation of the Relevant Provisions of the United Nations Convention on the Law of the Sea.* This Guide, produced in 1991, advised States of the means by which the articles of the Convention could be implemented by coastal and researching States. In almost two decades, however, several trends have emerged that suggest a need to reassess the Guide, including trends in marine data acquisition, marine data dissemination, and the emergence of large-scale, regional and international collaborative programmes. As a result, the Division for Ocean Affairs and the Law of the Sea, the mandate of which includes assisting States in the uniform and consistent application of the provisions of the Convention, including through the preparation of publications on oceans and the law of the sea, prepared a draft revision of the 1991 publication. In its resolution 63/111,[164] the General Assembly noted such preparations to be undertaken with the assistance of a group of experts, which met in April 2009. The revised Guide focuses, as in the case of the 1991 Guide, on the implementation of the Convention's core provisions on marine scientific research, particularly the consent procedure. Part I of the revised Guide discusses the provisions of the Convention on marine scientific research. Part II provides some information on States' practice and on some of the challenges facing developing coastal States, in particular. Part III identifies some best practices and provides some practical guidance for the implementation of the relevant provisions of the Convention. The annexes include standard forms to facilitate the process of granting consent for marine scientific research projects. The revised Guide is expected to be released as a United Nations publication in 2010.

B. Early warning systems

152. Tsunamis are a constant and unpredictable hazard that put coastal communities and infrastructure use and management at risk. Nearly five years after the Indian Ocean tsunami, most funding for tsunami early warning is now being phased out. However, in almost every aspect of tsunami warning — from operation of sea level sensors to institutional frameworks to community awareness initiatives — tsunami warning is most effectively and sustainably addressed through a multi-hazard approach. In this regard, early warning can be considered an important form of climate change adaptation, since climate change is expected to increase the frequency and severity of natural disasters.[165]

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[162] Report of the ninth meeting of IOC/ABE-LOS, document IOC/ABE-LOS-IX/3, at www.ioc-unesco.org/.

[163] See also A/63/63/Add.1, para. 109.

[164] Resolution 63/111, para. 145.

[165] *Tsunami Early Warning Systems in the Indian Ocean and Southeast Asia: Report on Regional Unmet Needs* (United Nations publication, Sales No. E.09.II.F.14).

153. IOC continued to coordinate the establishment of tsunami early warning systems in the Indian Ocean, the Caribbean and adjacent regions, the Mediterranean and the north-east Atlantic Ocean and connected seas, including complementary and sustained activities in tsunami hazard risk assessment, tsunami warning training, emergency response and preparedness as part of the comprehensive tsunami mitigation programmes. All four systems now focus on optimizing and improving their performance and the levels of consistency between and among participating members, particularly with regard to detection and verification. For the production, formulation and dissemination of advisories, alerts, alarms and nationally mandated warnings, common procedures were developed and performance measures introduced. General guidelines for risk assessments from tsunamis are being developed and internationally agreed standards on tsunami signage are being implemented by most member States of IOC.[166] In June 2009, the IOC "Guidelines on hazard awareness and risk mitigation in integrated coastal area management" were published.[167] Applying the approach used in the Pacific region, IOC has been working on the development and use of performance standards for the operations of national warning centres (e.g. for release of warnings within three minutes).[168] Recently, the IOC Assembly highlighted the problem of vandalism against tsunameters and other ocean observing platforms, which was undermining national and regional efforts to establish, inter alia, tsunami early warning systems.[169]

C. Recent developments in marine technology

154. Marine technology is being developed for a wide array of applications, including research, exploitation of resources, exploration of new forms of energy, shipping and the mitigation of the effects of other human activities that affect the oceans, such as pollution remediation. The following section can be read together with report of the Secretary-General (A/64/66/Add.2), which focuses on technology, in particular in relation to the conservation and sustainable use of marine biodiversity beyond areas of national jurisdiction.

155. *Energy*. The Energy Technologies Institute, a partnership between global industries and the Government of the United Kingdom, is funding projects aimed at providing affordable low-carbon electricity, including different aspects of offshore wind turbine technologies, and examining a commercial scale tidal turbine in real sea conditions.[170]

156. The vortex induced vibration aquatic clean energy converter is a new concept for generating energy from ocean currents and slow-moving rivers being developed at the University of Michigan, United States. The converter can work in currents as slow as 0.25 metres per second, and therefore can be used in a wider range of

[166] IOC contribution.
[167] IOC Manuals and Guides, No. 50.
[168] For specific developments in the various regional tsunami systems, see www.ioc-tsunami.org.
[169] IOC Assembly resolution XXV-13.
[170] www.energytechnologies.co.uk/home/news/09-01-13/ENERGY_TECHNOLOGIES_INSTITUTE_UNVEILS_FIRST_PROJECTS_TO_BENEFIT_FROM_1_1_BILLION_INITIATIVE.aspx.

environments than conventional turbines.[171] This technology will be field-tested in the Detroit River in 2010 and later developed for ocean-based applications.[172]

157. The Oyster wave energy converter, which has been successfully tested by the United Kingdom company Aquamarine Power, has provided energy for the Newcastle power grid under onshore conditions. It is expected to generate electricity in sea conditions ranging from almost calm to severe storm. The installation of a full scale converter is currently scheduled.[173]

158. An unmanned and fully automated drilling rig to carry out more cost-effective drilling on the seabed in ultradeep waters and in the Arctic is being developed by the Norwegian company Seabed Rig AS.[174] Phase 2 of the development project, which will involve the assembly and testing of the rig in a controlled environment, is now under way and is scheduled to be completed by August 2010.[175]

159. With recent rises in the cost of crude oil, research worldwide has turned towards the possible extraction of biofuels from algae. Researchers at the National Renewable Energy Laboratory, United States, are accelerating efforts to identify and characterize the strains of algae deemed most promising for fuel production[176] and companies and organizations are also investing in research and development.[177]

160. Ocean thermal energy conversion has been described as a clean, renewable energy source that has the potential to solve energy problems, in particular those of small island States.[178] The recent rising cost of crude oil has again turned attention to ocean thermal energy conversion, with many companies investing in research. Plans are in place to build small-scale test facilities within the next few years and research into the possibility of scaling up the technology to larger plants is also being conducted.[179]

161. *Pollution*. Nanogel, surface-treated hydrophobic aerogel granules of differing small sizes, may be an ideal sorbent or filter media for the removal of oil from wastewater. Recent studies at the New Jersey Institute of Technology, United States, have shown that oil concentrations of about 2,000 milligrams per litre in water could be reduced to less than 10 milligrams per litre by the inverse fluidization process using Nanogel.[180]

162. Robotic fish will be released into fresh and salt waterways as part of a trial to detect pollution, which will be conducted in the port of Gijon, in northern Spain.

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[171] http://scitation.aip.org/getabs/servlet/GetabsServlet?prog=normal&id=JMOEEX000130000004041101000001.

[172] www.metromodemedia.com/features/metrodetroitwaterengineering0118.aspx.

[173] www.aquamarinepower.com/news-and-events/news/latest-news/view/77.

[174] www.seabedrig.com.

[175] www.offshore-mag.com/index/article-display/347013/s-articles/s-offshore/s-drilling-completion/s-asia-pacific/s-unmanned-seabed-drilling-rig-under-study.html.

[176] www.nrel.gov/features/20090403_algae.html.

[177] See, for example, www.oilgae.com/ref/cap/oilgae/sub/algae_fuel_companies/algae_fuel_companies.html, www.xconomy.com/san-diego/2009/07/14/exxonmobil-makes-600-million-bet-on-biofuels-and-synthetic-genomics and www.bridgemarinescience.com/newsletter/globalmarinenews0709/Global-Newsletter-Issue-2.html.

[178] A/59/62, para. 281.

[179] www.newscientist.com/article/mg20026836.000-plumbing-the-oceans-could-bring-limitless-clean-energy.html?page=1.

[180] http://pubs.acs.org/doi/full/10.1021/ie800022e?cookieSet=1.

The three-year research project will use the life-like automatons that mimic the movement of real fish and have autonomous navigation capabilities, unlike previous robotic fish, which worked via remote control. The fish, which will be equipped with chemical sensors, would co nmunicate with each other via ultrasonics and information would be transmitted to a control centre through wireless Internet, thus allowing the mapping of a pollution event in real time.[181]

163. *Research*. A mesocosm, an observation device used to examine secluded parts of an environment, has undergone its first successful mission in deeper waters in the Baltic Sea by the Leibniz Institute of Marine Sciences, Germany, allowing observations to be made under natural conditions on a larger scale. The technology is well-established in regard to in-shore work and the next large-scale project is expected to be carried out in the Arctic in 2010.[182]

164. A new technique that could be used to propel small water-floating sensors and craft utilizing surface water tension is being studied at the University of Pittsburgh, United States. The technique, which bio-mimics certain insects, does not involve mechanical paddling, thereby creating the potential for cheaper devices without moving parts, which could also be ideal for extending the working life of such equipment.[183]

165. The Japanese research vessel *Chikyu*, while floating in seas 2 kilometres deep, drilled a hole in the seafloor 1.6 kilometres deep, making it the deepest hole ever drilled from a ship. The ship used a riser-drilling technique, which recirculates the drilling mud to maintain the pressure balance in the borehole.[184]

166. The vehicle *Nereus*, built by Woods Hole Oceanographic Institution, United States, successfully dove to a depth of 10,902 metres in the Mariana Trench on 31 May 2009, and was only the third vehicle ever to descend to the deepest part of the ocean. *Nereus*, an unmanned remotely operated deep-sea vehicle that can also be switched to free-swimming autonomous mode, is more versatile and agile than previous deep-sea vehicles.[185]

167. The WorldView-2 satellite, expected to be launched in October 2009 in the United States, will be the first high-resolution multispectral satellite, which will include a spectral band to enable remote sensing of shallow ocean floors. This band[186] is expected to aid bathymetric studies, allow for clearer discrimination between shallow ocean floor features and, in turn, assist with navigational charting, especially in remote regions, which are not accurately surveyed.[187]

168. A newly developed free-swimming, deep-diving robot, *Sentry*, developed by the Woods Hole Oceanographic Institution, United States, has completed its first scientific mission. *Sentry* is capable of diving to 5,000 metres for up to 20 hours

[181] www.bmt.org/News/?/3/0/510.

[182] www.ifm-geomar.de/index.php?id=537&L=1&tx_ttnews[tt_news]=349&tx_ttnews[backPid]=1&cHash=26d7555a8f and www.ifm-geomar.de/index.php?id=3294&L=1.

[183] www.pitt.edu/news2009/Cho.pdf.

[184] www.newscientist.com/article/mg20327204.200-research-ship-drills-deep-into-seafloor.html.

[185] www.whoi.edu/page.do?pid=10076&tid=282&cid=57586.

[186] 400-450 nanometre wavelength.

[187] http://worldview2.digitalglobe.com/docs/Bathymetry_Datasheet.pdf.

and, unlike the conventional torpedo shape of autonomous underwater vehicles, *Sentry* is shaped to give it more stability while cruising through bottom currents.[188]

169. *Shipping*. Royal Dirkzwager, the Dutch maritime information and service provider, is automating real-time shipping information. This automation is expected to improve complex maritime logistics and also, inter alia, route planning for vessels, which could potentially decrease fuel usage and costs and increase the timely delivery of goods.[189]

170. ShipConstructor Software Inc. has built software specifically for the shipbuilding and offshore industries and has introduced the online sharing site SC4D (http://SC4D.ShipConstructor.com) for the creation and sharing of models of ships and offshore structures created using computer-aided design, including attribute data and documentation. The use of the site will be free and open to all shipbuilders, designers and equipment manufacturers worldwide and will be community driven.[190]

171. The Sandwich Plate System, a technology that uses a solid polyurethane elastomer core to bind together two steel plates, is widely used in maritime repairs. Plans are being made to also use the technology in mainstream shipbuilding. Compared to traditional steel, the Sandwich Plate System requires 40 per cent less labour and is less susceptible to fatigue and corrosion, thus providing superior performance over a longer life cycle.[191]

172. Solar Sailor, an Australian company, has designed aluminium sails covered with photovoltaic panels that harness enough wind and sun power to supply up to 45 per cent of a ship's energy needs. The sails can be retrofitted to existing cargo ships and are expected to pay for themselves in fuel savings within four years of operation.[192]

173. The first floating nuclear power plant, the Academician Lomonosov, being built in the Russian Federation, completed its environmental impact assessment. The construction of the plant, which commenced in April 2007, is expected to be completed in 2011 and the vessel is expected to be in operation by the fourth quarter of 2012 in Vilyuchinsk.[193]

174. The Maritime Monitoring and Messaging Micro-satellite, a technology demonstration mission jointly funded and managed by Defence Research and Development Canada and the Canadian Space Agency, is expected to demonstrate the full capability of advanced space-based automatic identification system technology. Currently, system signals, which are broadcast from vessels for navigation and identification purposes, are only collected by other ships and land-based receivers within a 50 nautical mile range. The micro-satellite, which will allow these signals to be collected from space, is expected to be launched in 2010.[194]

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[188] www.whoi.edu/oceanus/viewArticle.do?archives=true&id=55446.

[189] http://web.progress.com/inthenews/progress-software-ca-03312009.html.

[190] www.shipconstructor.com/index.php?view=article&id=190.

[191] www.ie-sps.com/news_detail.html?sku=164&content_sku=637.

[192] www.solarsailor.com/media_cargoships_081028.htm.

[193] www.minatom.ru/en/news/15456_04.06.2009.

[194] micro.newswire.ca/release.cgi?rkey=1606236806&view=28380-0&Start=10.

IX. Conservation and management of marine living resources

A. Marine fishery resources

175. In its report entitled *The State of World Fisheries and Aquaculture 2008*,[195] FAO reiterated the conclusion of its 2006 report that the maximum wild capture fisheries potential from the world's oceans has probably been reached. The proportions of overexploited, depleted and recovering stocks for which assessment information was available had remained relatively stable over the past 10 to 15 years. In 2007, about 28 per cent of stocks were overexploited, depleted or recovering from depletion. A further 52 per cent of stocks were fully exploited, and only about 20 per cent of stocks were moderately exploited or underexploited with perhaps a possibility of producing more.

176. The state of world fisheries underscores the urgent need for the international community to sustain efforts to improve the governance of marine capture fisheries and address fishing practices that constitute impediments to sustainable fisheries. Enhancement of the legal and policy framework that governs the conservation, management and sustainable use of fishery resources can assist in this effort. This requires States and regional fisheries management organizations and arrangements to adopt measures that ensure the long-term sustainability of fishery resources and promote their optimum utilization. Such measures should be based on the best available scientific information and be consistent with the precautionary approach and ecosystem approaches.

177. The following section highlights meetings held during the reporting period, which were aimed at promoting sustainable fisheries and addressing a number of fishing practices that were considered to be impediments to sustainable fisheries.

1. Review by the General Assembly of the implementation of paragraphs 83 to 90 of resolution 61/105 on bottom fisheries

178. At its sixty-fourth session, to be held in 2009, the General Assembly will conduct a review of the action taken by States and regional fisheries management organizations and arrangements in regulating bottom fishing activities and protecting vulnerable marine ecosystems, with a view to making further recommendations where necessary. Detailed information regarding the actions taken by flag States and regional fisheries management organizations and arrangements with the competence to regulate bottom fisheries is provided in the report of the Secretary-General on sustainable fisheries, prepared in cooperation with FAO, to facilitate such review by the Assembly (see A/64/305).

2. Twenty-eighth session of the Committee on Fisheries of the Food and Agriculture Organization of the United Nations[196]

179. In March 2009, the FAO Committee on Fisheries, inter alia, encouraged States and regional fisheries management organizations and arrangements to implement the international plans of action for the management of fishing capacity, and for the

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[195] FAO, *The State of World Fisheries and Aquaculture 2008* (Rome, 2009).

[196] FAO, Report of the Twenty-eighth session of the Committee on Fisheries, Rome, 2-6 March 2009, No. 902, Rome, 2009, Global Policy and Regulatory Matters for the Attention of the Conferences and Programme and Budgetary Matters for the Attention of the Council.

conservation and management of sharks. It expressed its support for the development of guidelines on best practices for safety at sea, and also encouraged continued collaboration between FAO, IMO and ILO, particularly in the areas of safety at sea, work on fishing vessels and health standards (see also paras. 108-110 above). The Committee also adopted amendments to the Guidelines for the Ecolabelling of Fish and Fish Products from Marine Capture Fisheries and agreed that the FAO secretariat should develop best practice guidelines for catch documentation schemes and for traceability for consideration by the Committee at its next session.

180. In relation to the management of deep sea fisheries, the Committee noted the adoption of the International Guidelines for the Management of Deep-sea Fisheries in the High Seas by a technical consultation convened by the FAO in August 2008. It recommended that the FAO should continue to play a leading role in providing assistance for the implementation of the International Guidelines as well as to the identification and protection of vulnerable marine ecosystems on the basis of the best available scientific data. The Committee also expressed its support to FAO for its proposed four-year programme intended to address the major issues associated with the management of deep-sea fisheries in the high seas.

181. With regard to efforts to combat illegal, unreported and unregulated fishing, the Committee supported the development of a comprehensive global record of fishing vessels, refrigerated transport vessels and supply vessels.

182. The Committee noted that managing by-catch was an integral component of implementing the ecosystem approach to fisheries and supported the development of international guidelines on by-catch management and reduction of discards. The Committee also expressed the need for an international instrument on small-scale fisheries that would guide national and international efforts to secure sustainable small-scale fisheries and create a framework for monitoring and reporting.

183. In addition, the Committee recognized the importance of climate change and its increasing impacts on fisheries and aquaculture and noted the concerns of the most vulnerable countries regarding the adverse effects of climate change and sea level rise. In this regard, it underlined the importance of implementing the Code of Conduct for Responsible Fisheries, the application of the precautionary approach and an ecosystem approach to fisheries and aquaculture, in order to increase resilience and adaptability to climate change through improvement in the management of fisheries and aquaculture.

3. Food and Agriculture Organization of the United Nations Technical Consultation on port State measures

184. The lack of effective control by some flag States over fishing vessels flying their flag is an important contributing factor to illegal, unreported and unregulated fishing. In response to the unwillingness or inability of flag States to control the fishing activities of their vessels on the high seas, increasing emphasis is being placed, inter alia, on port States to ensure compliance by vessels with international conservation and management measures.

185. In 2007, the FAO Committee on Fisheries endorsed a timetable for the development of a legally binding instrument for port State measures, based on the FAO Model Scheme on Port State Measures to Combat Illegal, Unreported and Unregulated Fishing and the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. An expert consultation was

convened by FAO in 2007, at which a draft instrument was developed.[197] Three sessions of the Technical Consultation to draft a legally binding instrument on port State measures have been convened to date, in June 2008, January 2009 and May 2009. At its third resumed session, held from 24 to 28 August 2009, the Technical Consultation adopted the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, under article XIV of the FAO Constitution.

4. Food and Agriculture Organization of the United Nations Expert Consultation on flag State performance

186. FAO convened an Expert Consultation on flag State performance in Rome in June 2009.[198] The Consultation developed a set of criteria for assessing the performance of flag States, which included regulatory and behavioural criteria. The Consultation also identified possible actions that might be taken against vessels flying the flag of States not meeting the performance criteria, such as auditing flag State performance, identifying non-performing flag States at the international level and assisting developing States to improve their capacity to implement flag State responsibilities. At its twenty-eighth session, the FAO Committee on Fisheries had agreed that the Expert Consultation should be followed by a Technical Consultation on flag State performance.[199]

5. Second meeting of the Regional Fishery Body Secretariats Network

187. The second meeting of the Regional Fishery Body Secretariats Network, held in March 2009, considered recent efforts of regional fisheries management organizations and arrangements to combat illegal, unreported and unregulated fishing, including cooperation and coordination among regional fisheries management organizations and arrangements, the establishment of positive and negative vessel lists, the need for capacity-building for monitoring, control and surveillance, and the development by FAO of a global record of fishing vessels. Participants also addressed harmonization of catch documentation schemes, overcapacity and responsible fisheries in marine ecosystems, including the implementation of an ecosystem approach to fisheries, recent developments regarding marine protected areas, performance reviews of regional fisheries management organizations and arrangements and other regional fisheries bodies, as well as issues related to small-scale and inland fisheries and aquaculture.

6. Second joint meeting of tuna regional fisheries management organizations

188. The second joint meeting of tuna regional fisheries management organizations (the "Kobe process") was held from 29 June to 3 July 2009.[200] Workshops were held to review the actions agreed upon at the first meeting of the Kobe process and to discuss fishing capacity issues.

189. The meeting adopted a Course of Actions, in which regional fisheries management organizations were called upon, inter alia, to urgently address the

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[197] FAO document (FIEL) R856 (En). See also A/63/63, para. 254.

[198] A/62/66/Add.1, para. 117.

[199] See *FAO Fisheries and Aquaculture Report*, p. xi, para. xxvi.

[200] The report of the meeting is available at www.tuna-org.org. For information regarding the first meeting, see A/62/66/Add.1, paras. 129-130.

problem of overcapacity; avoid the unauthorized transfer of capacity; establish a global register of active vessels; implement a robust compliance review mechanism within each regional fisheries management organization; improve requests for scientific advice; establish conservation and management measures for sharks; provide data and adopt measures to address low compliance with data provision obligations; advance the implementation of a combined vessel register that incorporates a unique vessel identifier; harmonize procedures relating to illegal, unreported and unregulated vessel lists, with the aim of developing a global list of such vessels; and enhance the capacity of developing coastal States. The work plan for 2009-2011 called for four intersessional workshops to be held on the following topics: regional fisheries management organization management of tuna fisheries; improvement and harmonization of monitoring and control measures; issues relating to by-catch; and the scientific process in regional fisheries management organizations.

7. Pacific Islands Forum

190. The fortieth Pacific Islands Forum was held on 5 and 6 August 2009. In the Final Communiqué,[201] member States committed to working collectively to ensure that the Western and Central Pacific Fisheries Commission adopted and implemented effective measures to address overfishing of highly migratory fish stocks that are critical to the development opportunities of many members of the Forum. Leaders also committed to work with the Forum Fisheries Agency (FFA) to ensure that coastal States in the region were able to manage tuna resources and maximize economic returns from the long-term sustainable utilization of this resource. The initiative of the Forum Fisheries Agency to develop a regional monitoring, control and surveillance strategy was welcomed. Leaders recalled, inter alia, that the Vava'u Declaration of 2007 and its reaffirmation in Niue in 2008 had called for strengthened mechanisms to protect regional fisheries via new regional arrangements.

191. Australia will host a meeting of Pacific Islands countries' ministers responsible for both fisheries and law enforcement/justice in early 2010, at which agreement is expected to be reached on the form of new legal arrangements to be negotiated and a road map for the negotiation process, which is to conclude no later than the end of 2012.

B. Whales and other cetaceans

192. As migratory species, whales and other cetaceans remain vulnerable to a number of anthropogenic activities at sea. Some of the causes for concern to the status of some large and small cetaceans include chemical pollution, ship strikes, harvesting, underwater noise, by-catch, ingestion of marine litter and the impacts of climate change (see also paras. 208-211 below).

193. At its sixty-first annual meeting, the International Whaling Commission reviewed the status of a number of large whale stocks, giving special attention to the endangered western North Pacific grey whale. The Commission endorsed the

[201] See www.forumsec.org.Fj/pages.cfm/newsroom/press-statements/2009/final-communique-of-40th-pacific-islands-forum-cairns.html.

recommendations of a "range wide workshop" organized by the International Union for the Conservation of Nature, in particular the development of a conservation plan, and agreed to mitigate anthropogenic threats to this endangered population. The Commission agreed that anthropogenic mortality of the endangered western North Atlantic right whale population, including through ship strikes and entanglements, should be reduced to zero. The Commission expressed concern over the status of the common dolphin in the Mediterranean, the waters off the coast of Peru and parts of the north-eastern Atlantic, and emphasized its extreme concern over the status of the critically endangered vaquita.[202]

194. The Commission adopted a resolution on climate and other environmental changes and cetaceans requesting, inter alia, Contracting Governments to incorporate climate change considerations into existing conservation and management plans.[203]

195. The Commission agreed to establish a Conservation Committee standing working group to prepare a five-year strategic plan for the management of whale watching. The Group will meet intersessionally. The Commission also agreed to hold an intersessional workshop on welfare issues associated with euthanasia and the entanglement of large whales. In relation to ship strikes, a standardized global database of collisions between vessels and whales is now operational on the website of the Commission.[204] The Commission has been granted interim observer status at IMO.

196. A number of other issues addressed in the negotiations on the future of the Commission were also considered, including sanctuaries, special permit whaling and the revised management scheme.[205]

X. Marine biological diversity

197. Research continues to demonstrate that marine life and biodiversity is important for maintaining a healthy global ecosystem, including its climate, and sustaining socio-economic development. For example, marine biodiversity, including its genetic pool, is increasingly being researched for the development of biofuels[206] and other products.[207] Ongoing research suggests that jellyfish and micro-organisms may have an important role in ocean circulation and chemistry, with corresponding effects on the climate system.[208] At the World Conference on Marine Biodiversity, held in November 2008, scientists drew attention to the urgent need to adopt measures for the conservation and sustainable use of marine

[202] IWC Press Release at www.iwcoffice.org/meetings/meeting2009.htm.

[203] Ibid.

[204] See www.iwcoffice.org/sci_com/shipstrikes.htm.

[205] Consensus resolution on the extension of the Small Working Group on the Future of the IWC until the 62nd Annual Meeting of the Commission, IWC/61/10rev.

[206] See D. Song et al., "Exploitation of oil-bearing microalgae for biodiesel", *Chinese Journal of Biotechnology*, vol. 24, No. 3, 2008; Bridge Marine Science Group, Global Marine News, Issue 2 (July 2009); and Jad Marawad, "Exxon to invest millions to make fuel from algae", *New York Times*, 13 July 2009.

[207] A/64/66/Add.1, para. 105, and A/62/66, paras. 160-168.

[208] See Peter N. Spotts, "How jellyfish may be stirring the ocean", *Christian Science Monitor*, 29 July 2009. See also Carl Zimmer, "Scientists find a microbe haven at ocean's surface", *New York Times*, 27 July 2009.

biodiversity, including integrated ocean management and the development of participative management structures and mechanisms to enhance cooperation between scientists, Governments and relevant organizations.[209] The *Millennium Development Goals Report 2009* also notes that sustained investments are needed to effectively conserve biodiversity. The following section outlines recent measures to address activities and pressures on marine biodiversity, followed by measures for specific ecosystems and species. Developments related to marine genetic resources are discussed in the reports of the Secretary-General, documents A/64/66 and A/64/66/Add.2.

A. Measures to address activities and pressures on marine biological diversity

198. The General Assembly, in its resolution 61/203, decided that 2010 would be the International Year of Biodiversity.[210] In resolution 63/219 on the Convention on Biological Diversity, the Assembly, inter alia, decided to convene at its sixty-fifth session, a one-day high-level meeting. The International Year of Biodiversity will provide an opportunity to also raise awareness of issues relating to marine and coastal biodiversity.

199. Also in 2010, as decided by the General Assembly in paragraph 127 of resolution 63/111, a third meeting of the Ad Hoc Open-ended Informal Working Group will be convened, in accordance with paragraph 73 of resolution 59/24 and paragraphs 79 and 80 of resolution 60/30, to provide recommendations to the Assembly. In that regard, in accordance with paragraph 128 of resolution 63/111, the Secretary-General submitted a report to the sixty-fourth session of the Assembly to assist the Working Group in preparing its agenda, in consultation with all relevant international bodies (A/64/66/Add.2).

200. In response to requests by the Conference of the Parties to the Convention on Biological Diversity, the secretariat of the Convention on Biological Diversity is currently preparing three reports in collaboration with States parties and relevant international organizations: (a) a compilation and synthesis of available scientific information on the impacts of destructive fishing practices, unsustainable fishing, and illegal, unreported and unregulated fishing on marine biodiversity and habitats; (b) a compilation and synthesis of available scientific information on potential impacts of direct human-induced ocean fertilization on marine biodiversity; and (c) a compilation and synthesis of available scientific information on ocean acidification and its impacts on marine biodiversity and habitats.[211] The reports will be considered by the Subsidiary Body on Scientific, Technical and Technological Advice in 2010.

201. The secretariat of the Convention on Biological Diversity is also preparing a background document for in-depth review by the Conference of the Parties in 2010

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[209] See "The Valencia Declaration: a plea for the protection of marine biodiversity", 15 November 2008, available at www.marbef.org/worldconference/.

[210] Resolution 61/203 on the International Year of Biodiversity, 2010. See also decision IX/33 of the Conference of the Parties to the Convention on Biological Diversity in UNEP/CBD/COP/9/29, annex I.

[211] Conference of the Parties to the Convention on Biological Diversity decision IX/20, paras. 2-4.

of the progress made in the implementation of the programme of work on marine and coastal biological diversity.[212]

B. Measures for specific ecosystems and species

202. This section provides information on developments relating to specific ecosystems. More detailed information on deep-sea ecosystems is contained in the report of the Secretary-General, document A/64/66/Add.2.

203. *Coral reefs*. New coral and associated species continue to be discovered. For example, new types of soft corals and other animal species never before described have been discovered on Australia's reefs in the context of the Census of Marine Life.[213] At the same time, a recent study notes that coral reefs are under unprecedented pressure worldwide because of climate change, changes in water quality from terrestrial runoff and overexploitation. Particular concern has been expressed over increased levels of carbon dioxide acidifying or decreasing pH levels in surface waters. Lower pH levels can reduce calcium carbonate, which corals use to build their skeletons.[214]

204. The report *Status of Coral Reefs of the World: 2008*[215] indicates a number of priority actions to enhance coral reefs conservation. These include: urgently combating global climate change; maximizing coral reef resilience; including more reefs in marine protected areas; protecting remote reefs; improving enforcement of marine protected area regulations; and helping improve decision-making with better ecological and socio-economic monitoring.

205. At its General Meeting held in April 2009, the International Coral Reef Initiative adopted three resolutions on (a) communication and awareness; (b) invasive alien species; and (c) coral disease.[216] The General Meeting also adopted decisions regarding, inter alia, the intent to submit a motion to the next General Meeting on proposals for coral reef listings and other proposed listings relevant to coral reef ecosystems to be included in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

206. In May 2009, the Heads of State of the six Coral Triangle countries (Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste) officially launched the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (see para. 284 below).[217]

207. *Wetlands*. In November 2008, at its tenth meeting, the Conference of the Parties to the Ramsar Convention on Wetlands adopted the Changwon Declaration on human well-being and wetlands, which addressed priority action on, inter alia, water, climate change, livelihoods, human health, land use change and biodiversity.

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[212] Ibid., decision VII/5, annex I.

[213] Environment News Service, "Hundreds of new corals found on familiar Australian reefs", 19 September 2008. Available from www.ens-newswire.com/ens/sep2008/2008-09-19-02.asp.

[214] G. De'ath et al., "Declining coral calcification on the Great Barrier Reef", *Science*, vol. 323, No. 5910 (2008), p. 116-119.

[215] *Status of Coral Reefs of the World: 2008*, Global Coral Reef Monitoring Network and Reef and Rainforest Research Center, Townsville, Australia.

[216] The resolutions are available at www.icriforum.org/gmthailand_outcomes.html.

[217] For further information, see www.cti-secretariat.net/.

Other resolutions adopted by the Conference of the Parties addressed issues such as updated scientific and technical guidance on environmental impact assessment and strategic environmental assessment, wetlands and human health and well-being, climate change and wetlands, and wetlands and "biofuels".[218]

208. *Cetaceans*. The IMO Marine Environment Protection Committee considered a draft guidance document on ship strikes to be disseminated as a circular.[219] Work is also ongoing in the context of the International Whaling Commission (see paras. 193 and 195 above) and the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area. The IMO Marine Environment Protection Committee also approved the inclusion of the issue of incidental noise from commercial shipping operations on the agenda of its next meeting (see para. 252 below).

209. At an international workshop on cetacean by-catch within the Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, held in September 2008, participants reviewed national overviews of cetacean-fisheries conflicts; extended and adapted the draft protocol for data collection on by-catch and depredation to other species of conservation concern; and approved the use of a multidisciplinary database on incidental catches[220] developed by the General Fisheries Council for the Mediterranean.

210. *Other migratory species*. In December 2008, at its ninth meeting, the Conference of the Parties to the Convention on Migratory Species of Wild Animals adopted a number of resolutions related to marine migratory species. In particular, in its resolution 9.9, inter alia, the Conference emphasized the urgency of identifying priority marine issues, species and habitats requiring intervention by the Convention in the next decade, and requested the Scientific Council of the Convention to undertake a number of actions. These actions include to seek avenues for research and dialogue on issues of common interest, such as climate change, fisheries and outreach strategies, with a number of relevant international bodies; review the latest available information on the current and predicted conservation status, in relation to the possible consequences of climate change, of all Arctic migratory marine species listed in the appendices to the Convention; consider whether additional Arctic migratory marine species might warrant listing on the appendices of the Convention; and further consider existing initiatives and research relating to ongoing conservation efforts for marine migratory species, such as the establishment of ecologically representative marine protected area networks and an integrated approach to coastal and marine management. The Conference also adopted resolutions on ocean noise, by-catch (see also A/64/66/Add.2) and climate change impacts on migratory species (resolution 9.7). The latter, inter alia, urged parties to the Convention to address the threats posed to migratory species by climate change and by climate change mitigation and adaptation activities.[221]

211. At the regional level, the Memorandum of Understanding Concerning the Conservation of Manatee and Small Cetaceans of Western Africa and Macaronesia

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[218] See www.ramsar.org/res/key_res_x_index_e.htm.

[219] MEPC 59/24. See also MEPC 58/18 and A/63/63/Add.1, para. 144.

[220] All meeting documents are available at www.accobams.org/2006.php?pages=show_315.

[221] For example, a 2009 report entitled "The state of the world's sea turtles" notes the particular impacts of climate change on marine turtles as a result of coral bleaching and sea-level rise, among other factors. The report is available at http://seaturtlestatus.org.

was signed in October 2008, under the framework of the Convention, by 15 West African countries and three non-governmental organizations. It came into effect on the date of signature.[222] The second Meeting of the Signatories to the Memorandum of Understanding for the Conservation of Cetaceans and their Habitats in the Pacific Islands Region, held in July 2009, agreed, inter alia, a four-year action plan outlining priorities for the conservation of whales and dolphins in the region.[223]

212. A draft agreement for marine turtles in the Pacific Islands region is under preparation.[224] In August 2008, the Signatory States of the Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia adopted a resolution on marine turtle by-catch reduction measures and agreed that a list of sites of importance for marine turtles should be developed. An intersessional working group will be established to finalize the selection criteria for nominating sites.[225]

213. *Trade in endangered species.* The Animals Committee under the Convention on International Trade in Endangered Species of Wild Fauna and Flora considered issues pertaining to a number of marine species at its twenty-fourth meeting, held in April 2009. In particular, the Committee agreed to include *Tridacna* spp. (Giant clams) from the Solomon Islands, *Hippocampus kelloggi* (Kellog's sea horse), *H. spinissimus* (Hedgehog seahorse), *H. kuda* (Estuary seahorse), *Huso huso* (Beluga) and the Solomon Islands population of *Tursiops aduncus* (Bottlenose dolphins) in the review of significant trade in appendix II species. It recommended steps to continue improving sturgeon stock assessment and the methodology for determining the total allowable catch.[226] In relation to sharks and stingrays, it also recommended, inter alia, that parties improve data collection, management and conservation for shark species of concern and continue research to improve understanding of the situation and identify the linkages between international trade in shark fins and meat and illegal, unreported and unregulated fishing. The Committee recommended that Parties that are shark-fishing States develop a national shark plan at the earliest opportunity and take steps to improve research and data collection on both fisheries and trade. Regarding sustainable use and management of sea cucumber fisheries, it recommended preparing a report containing information from the FAO global review of fisheries and trade in sea cucumbers, and an evaluation of the advantages and disadvantages of a Convention listing.[227]

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[222] Contribution of the Convention Secretariat.

[223] See press release "2nd Meeting of the Signatories to the Pacific Cetaceans MoU" (29 July 2009).

[224] Contribution of the Convention Secretariat.

[225] Report of the fifth meeting of the Indian Ocean-South-East Asian Marine Turtle Memorandum of Understanding Signatory States, available at www.ioseaturtles.org/iosea_meeting.php?id=15.

[226] These steps were subsequently endorsed by the Standing Committee at its fifty-eighth meeting in July 2009. See fifty-eighth meeting of the Standing Committee, executive summary document SC58 Sum. 7 (Rev.1).

[227] Draft summary record, twenty-fourth meeting of the Animals Committee, available at www.cites.org/eng/com/AC/24/E-AC24-SumRec.pdf.

XI. Protection and preservation of the marine environment and sustainable development

A. Introduction

214. The resources provided by ocean and coastal ecosystems, as well as various ocean uses, sustain billions of people around the world through, inter alia, the provision of food, shelter, energy, transportation, employment and recreation. The oceans also play a significant role in regulating global climate and the oxygen cycle, and are increasingly used as sources of clean renewable energy, such as geothermal energy, hydropower and tidal, wave and thermal energy.[228] Safe, healthy and productive seas and oceans are thus integral to human well-being, economic security and sustainable development.[229] However, global drivers of change, such as population growth, economic activities and consumption patterns, have placed increasing pressure on marine ecosystems.[230] Global climate change is further exacerbating adverse impacts on coastal and ocean ecosystems.[231]

215. Adverse changes in the environment, including the marine environment, in conjunction with financial instability, the global economic crisis and rising food and fuel prices, have a negative impact on sustainable development.[232] It has been reported that management of the impacts of human activities on marine ecosystems has had limited results so far, in particular in coastal ecosystems, owing to a number of factors, including limited appreciation for the value of healthy marine ecosystems, limited science, fragmentation of management responsibilities across and within jurisdictions, and limited buy-in from local communities.[233]

216. New commitments were made at the High-level Event on the Millennium Development Goals held at United Nations Headquarters in September 2008, in order to accelerate progress towards achieving the Millennium Development Goals.[234] While some of those commitments take into account the role of marine ecosystems in poverty and hunger alleviation, specific commitments to support action and initiatives aimed at sustainable ocean management, including in support of research and capacity-building, remain limited. World Oceans Day (see para. 1 above) provided an opportunity to raise global awareness of the current challenges faced by the international community in sustainable ocean management, and reflect on future prospects and challenges in the implementation of the regime established

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[228] While marine renewable energy projects are still limited, UNEP reports a four-fold increase in investment in the renewable energy sector since 2004 and a five per cent increase between 2007 and 2008, despite the global economic recession. See UNEP, *Global Trends in Sustainable Energy Investment 2009*, DTI/1186/PA.

[229] Message of the Secretary-General on World Oceans Day 2009.

[230] UNEP, *Global Environmental Outlook: environment for development (GEO-4)* (2007).

[231] United Nations University/International Network on Water, Environment and Health, "Stemming decline of the coastal ocean: rethinking environmental management" (2008). See also UNEP, "In dead water: merging of climate change with pollution, over-harvest, and infestations in the world's fishing grounds" (2008). See also *Millennium Development Goals Report 2009*.

[232] *Millennium Development Goals Report 2009*.

[233] United Nations University/International Network on Water, Environment and Health, "Stemming decline of the coastal ocean: rethinking environmental management" (2008).

[234] See Compilation of initiatives and commitments relating to the High-level Event on the Millennium Development Goals, available at www.un.org/millenniumgoals/2008highlevel/commitments.shtml.

by the Law of the Sea Convention for the protection and preservation of the marine environment. Among them, improving the science-policy interface for biodiversity and ecosystem services, as highlighted by the UNEP Governing Council, is crucial for sound decision-making and sustainable development.[235] In that regard, further steps in the regular process (see paras. 365-367 below) could provide a basis for improved management of the oceans and their resources. Recent initiatives have also sought to bring together business leaders, scientists, Governments and civil society organizations with the aim of advancing ocean sustainability.[236]

B. Ecosystem approaches

217. The international community has continued its efforts to implement ecosystem approaches given, in particular, the deadline set by the World Summit on Sustainable Development to encourage the application of such approaches by 2010.[237] Recent efforts in that regard include the focus of the tenth Global Meeting of the Regional Seas Conventions and Action Plans on issues relating to ecosystem-based management and the Regional Seas Programme.[238]

218. Efforts have also continued in the development of large marine ecosystems projects. In this regard, the UNEP Regional Seas Programme and the Coordination Office of the Global Programme of Action for the Protection of the Marine Environment from Land-based activities (GPA) have coordinated the development of a report on the ecological condition of each of the ecosystems in the Regional seas in order to promote a global understanding of them.[239]

219. The African Ministerial Conference on the Environment reported that the Global Environment Facility (GEF), the contracting parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) and their development partners had embraced an ecosystem-wide approach to management of the large marine ecosystems of the region. UNEP, the Global Environment Facility and the contracting parties would invest over $78 million between 2004 and 2012 to support large marine ecosystem projects in the western Indian Ocean.[240]

220. The UNEP Caribbean Environment Programme has provided support to the Caribbean large marine ecosystem project of the Global Environment Facility, which was developed to help Caribbean countries, through an ecosystem-level approach, to improve the management of their shared living marine resources, most

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[235] Decision 25/10, Intergovernmental science-policy platform on biodiversity and ecosystem services, document UNEP/GC.25/17, annex I.

[236] These initiatives include the BioMarine Forum, held in October 2008 (www.biomarine.org/index.php/gb/), and meetings organized by the Global Forum on Oceans, Coasts, and Islands, including the Workshop on Governance of Marine Areas Beyond National Jurisdiction: Management Issues and Policy Options, held in November 2008 (www.globaloceans.org/highseas/index.html).

[237] See A/64/66, paras. 141-150, and A/64/66/Add.2, paras. 117-127.

[238] Report of the tenth Global Meeting of the Regional Seas Conventions and Action Plans, November 2008.

[239] K. Sherman and G. Hempel, eds., *The UNEP Large Marine Ecosystems Report: a perspective on changing conditions in LMEs of the world's regional seas*, UNEP Regional Seas Report and Studies No. 182, UNEP 2009 (available at www.lme.noaa.gov).

[240] Contribution of the Ministerial Conference.

of which were fully or overexploited. Pilot projects on specific transboundary fisheries will test governance models at the local, national and subregional levels and provide additional knowledge on means of applying ecosystem-based approaches to fisheries management, and determine the socio-economic importance and sensitivities of fisheries.[241]

221. In the Arctic, the 2004 Arctic Marine Strategic Plan of the Arctic Council Ministers continues to be implemented under the programme for the Protection of the Arctic Marine Environment. In addition to developing a working map of 17 Arctic large marine ecosystems, the programme continues to, inter alia, advance work on the suites of indicators of the changing state of Arctic large marine ecosystems and develop the large marine ecosystem approach for pilot assessment and management projects for the Arctic.[242]

222. In the context of climate change, the Asian Development Bank (ADB) has highlighted the adoption of the Manado Ocean Declaration in May 2009 and emphasized the importance of promoting the large marine ecosystem approach, which has enhanced institutional and international cooperation among countries that share marine ecosystems and resources, due to its broad vision in respect of pollution, fisheries, primary production, environmental monitoring, socio-economic development and governance (also see paras. 286 and 345 below).[243]

223. Implementation of an ecosystem approach to fisheries also remains an integral part of the work and mandate of FAO and has been widely promoted among FAO members as a means of encouraging long-term sustainability in fisheries. Several member countries have received support and training in concepts and methodologies for planning and implementing the ecosystem approach.[244] FAO has also developed a programme proposal for future activities on deep-sea fisheries in the high seas to assist in the implementation of the FAO International Guidelines for the Management of Deep-sea Fisheries in High Seas (see para. 180 above), which includes as one of its four main components the creation of a database on vulnerable marine ecosystems.[245]

224. A number of regional fisheries management organizations and arrangements have reported on their efforts to incorporate an ecosystem approach to the conservation and management of marine living resources and to address the impacts of bottom fishing activities on vulnerable marine ecosystems, in accordance with resolution 61/105 of the General Assembly.[246] For example, the International Commission for the Conservation of Atlantic Tunas reported that the overall goal of its newly created Subcommittee on Ecosystems was to integrate the ecosystem monitoring and research activities required by its Standing Committee on Research

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[241] UNEP contribution.

[242] Protection of the Arctic Marine Environment progress report on the ecosystem approach to Arctic marine assessment and management, 2006-2008, at http://arcticportal.org/en/pame.

[243] Contribution of the Asian Development Bank.

[244] FAO contribution. FAO has also developed a technical paper on best practices in ecosystem modelling for informing an ecosystem approach to fisheries (see *FAO Fisheries Technical Guidelines for Responsible Fisheries*, No. 4, Supp. 2, Add.1. Rome, FAO, 2008).

[245] FAO contribution. See also A/64/305 and A/64/66/Add.2.

[246] Contributions from the Commission for the Conservation of Antarctic Marine Living Resources, the North East Atlantic Fisheries Commission, the South East Atlantic Fisheries Organization, the Western and Central Pacific Fisheries Commission, the FFA and ICCAT. For further details see A/64/305.

and Statistics, and would thus serve as the scientific cornerstone of an ecosystem approach to fisheries in the Commission. It also indicated that the Subcommittee was currently working on a number of areas, including conducting an assessment of the potential impact that tuna fisheries in the Atlantic Ocean could have on seabird populations.[247] Incorporating ecosystem considerations into fisheries management arrangements has also been discussed during the Regional Fishery Body Secretariats Network biennial meetings.[248]

C. Degradation of the marine environment from land-based activities

1. Pollution from land-based activities

225. As much as 80 per cent of marine pollution originates from land-based activities[249] (see also chapter XII below). For example, nearly 3,600 tons of mercury are discharged into the environment annually, much of which reaches the marine environment, where it can bio-accumulate in the food chain.[250] Sources of pollution are sometimes located far from the coast and are transported to the coasts by, inter alia, rivers or other waterways. Thus, regulating pollution at the point of discharge can sometimes be challenging.

226. The GPA is designed to assist States in taking individual or joint actions, in line with their respective policies, priorities and resources, that will lead to the prevention, reduction, control and/or elimination of the degradation of the marine environment and to its recovery from the impacts of land-based activities.

227. In response to the danger posed by mercury pollution, the UNEP Governing Council/Global Ministerial Environment Forum agreed, in February 2009, on a process and timetable for the negotiation of a global, legally binding instrument to reduce the risks to human health and the environment arising from worldwide emission and discharges of mercury.[251]

228. On 6 May 2009, a global partnership of scientists, policymakers, the private sector, non-governmental organizations and international organizations was launched to address the growing problem of nutrient overenrichment.[252] The aim of this partnership is to help countries actively engage in identifying and implementing cost-effective and workable solutions by raising awareness among policymakers about the causes and harmful impacts of overenrichment, and the benefits of taking action and fostering engagement by all stakeholders.[253]

229. The analytical approach and framework for bringing coastal and marine resource issues into the mainstream of the national development frameworks established by the UNEP/GPA Coordination Office, pursuant to the decision of the Second Intergovernmental Review Meeting of the GPA in 2006, was discussed during a series of global and regional workshops and regional meetings of GPA member countries in India, Jamaica and Mauritius.

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[247] Contribution of the International Commission for the Conservation of Atlantic Tuna.

[248] Contribution of the North-East Atlantic Fisheries Commission.

[249] www.gpa.unep.org/content.html?id=180&ln=6.

[250] GPA Outreach, July-September 2008, p. 8.

[251] GC/GMEF decision 25/5: Chemicals management, including mercury.

[252] See www.gpa.unep.org/content.html?id=418&ln=6.

[253] www.gpa.unep.org/documents/gpnm_brochure_1_english.pdf.

230. In June 2008, UNEP, UNDP, GEF, the Global Water Partnership and the Global Forum on Oceans, Coasts and Islands, among others, established a Working Group on Linking the Management of Freshwater, Oceans and Coast, which will work to increase focus on freshwater-coast linkages at high-level conferences and to ensure that visible action on the ground is taken to apply integrated coastal area and river basin management techniques[254] (see paras. 385-387 below). For a description of activities undertaken at the regional level, see section K below.

2. Marine debris

231. Since a significant amount of marine debris derives from land-based activities, the UNEP/GPA and regional seas programmes have carried out a number of activities in recent years to address this growing cause of concern (see paras. 297, 319 and 320 below). An overview and analysis of regional activities, as well as recommendations for addressing marine litter problems worldwide, were presented in a 2009 UNEP report, *Marine Litter: a Global Challenge*.[255] The report, inter alia, highlighted the need for more scientific information on the impacts of marine litter, a standardized methodology to collect and measure marine litter, integration of marine litter into waste management strategies, improved implementation and enforcement of existing laws and regulations, exploration of the possible role of market-based initiatives and the development of both national and regional strategies for addressing marine litter.[256] In response to the lack of adequate science-based monitoring and assessment programmes relating to marine litter, UNEP and IOC have jointly developed the following four sets of operational guidelines for different types of information gathering: (a) comprehensive assessments of beach cast litter; (b) assessments of benthic litter; (c) assessment of floating litter; and (d) rapid assessments of beach cast litter.[257] In its separate report, UNEP reported that there was an urgent need to approach the issue of marine litter through better enforcement of laws and regulations, expanded outreach and educational campaigns and the employment of strong economic instruments and incentives.[258] Another recent report commissioned by UNEP, sets out guidelines on the use of market-based instruments to address problems relating to marine litter.[259] Finally, a joint UNEP/FAO report analyses the problem of abandoned, lost or otherwise discarded fishing, its causes and impacts, as well as measures to address it.[260] While this fishing gear represents only a small percentage of marine litter, it can have significant repercussions on the marine environment, including through "ghost fishing".[261]

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[254] GPA Outreach, October-December 2008, available at www.stakeholderforum.org/fileadmin/files/GPA_Outreach/GPA_Outreach_November-December_2008_FINAL_01.pdf.

[255] UNEP, *Marine Litter: a Global Challenge* (2009).

[256] Ibid., pp. 8-10.

[257] UNEP/IOC, *Guidelines on Survey and Monitoring of Marine Litter*. Regional Seas Reports and Studies No. 186, IOC Technical Series No. 83 (2009).

[258] UNEP/OZONE, *Global Threat, Global Challenge, Review and analysis of UNEP's Global Initiative on Marine Litter* (2009).

[259] UNEP, *Guidelines of the Use of Market-based Instruments to Address the Problem of Marine Litter* (2009).

[260] FAO and UNEP, *Abandoned, lost or otherwise discarded fishing gear*, UNEP Regional Seas Reports and Studies 185, FAO Fisheries and Aquaculture Technical Paper 523 (2009).

[261] Ibid., p. xvi.

D. Pollution from ships

232. As noted in chapter V above, shipping plays a very important role in underpinning the global economy by providing a safe and efficient way to move goods and raw materials, in large quantities, around the world. However, the marine environment can be adversely affected by oil pollution, air pollution and greenhouse gas emissions (see paras. 349-353 below), invasive species (see paras. 244-250 below), noise (see paras. 251-253 below), collisions and chemical pollution resulting from shipping activities. Efforts are being made to address some of these problems, as outlined below (see also paras. 193 and 195 above).

1. Discharge of substances

233. *MARPOL 73/78 annex I (oil).* In July 2009, the IMO Marine Environment Protection Committee adopted two amendments to annex I to MARPOL 73/78 concerning (a) the prevention of pollution during transfer of oil cargo between oil tanks at sea;[262] and (b) the on-board management of oil residue (sludge). Both amendments will enter into force on 1 January 2011. Consequential amendments to the International Oil Pollution Prevention Certificate and the Oil Record Book were also adopted.[263]

234. *MARPOL 73/78 annex V (garbage).* In July 2009, the IMO Marine Environment Protection Committee re-established the Correspondence Group for the review of annex V.[264] The Committee also adopted the "Guidance on managing spoilt cargoes", as adopted by the Contracting Parties to the London Convention and the London Protocol (see para. 255 below), and recommended its distribution through a circular. The Committee further requested that a circular be issued stating that cargo hold washing water containing the remnants of any dry cargo material generated in connection with the ship cleaning its cargo holds was not considered garbage under annex V within the "Gulfs area" and the "Mediterranean Sea area"; that such cargo hold washing water could be discharged at a distance greater than 12 nautical miles from shore within these areas; and cargo residues in the washing water could not originate from a cargo material classified as a marine pollutant in the International Maritime Dangerous Goods Code.

235. *Harmful antifouling systems.* Under the International Convention on the Control of Harmful Anti-fouling Systems on Ships, which entered into force on 17 September 2008, ships are not permitted to apply or reapply organotin compounds, which act as biocides in their antifouling systems. Pursuant to the provisions of that Convention, ships shall not carry such compounds on their hulls or external parts or surfaces; otherwise, a coating must be applied to form a barrier that prevents them leaching from the underlying non-compliant antifouling systems. With a view to facilitating the implementation of the Convention, the IMO Marine Environment Protection Committee reiterated its invitation to Member States to provide information regarding any antifouling systems approved, restricted or prohibited under their domestic law in accordance with the Convention.[265]

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[262] The amendments apply to oil tankers of 150 gross tonnage and above and are not intended to apply to bunkering operations.

[263] MEPC 59/24.

[264] See report of the Correspondence Group on work during the intersessional period, MEPC 59/6/3.

[265] MEPC 58/23.

236. In July 2009, the IMO Marine Environment Protection Committee also approved the "Guidance on best management practices for removal of antifouling systems from ships, including tributyltin hull paints". It also agreed that the subject of in-water hull cleaning, excluded from the Guidance, would be considered by the Bulk Liquids and Gases Subcommittee under its agenda item on biofouling.[266]

237. *Reception facilities.* In its discussion of regional arrangements in the context of the 2008 Action Plan on tackling the inadequacy of port reception facilities, the IMO Marine Environment Protection Committee considered that, in order to institutionalize regional arrangements for providing reception facilities, appropriate amendments should be made to the relevant MARPOL 73/78 annexes and resolution MEPC.83(44). It further determined that until any amendments had been adopted and had entered into force, its decision in 2006 to recognize the benefit of regional arrangements as a means of providing reception facilities should stand.[267] The Committee also agreed with the IMO Subcommittee on Flag State Implementation that the finalized "Guide to Good Practice for Port Reception Facilities" should be issued as a circular. Furthermore, it was agreed to re-establish the Correspondence Group to work on the remaining work items of the Action Plan.[268]

238. *Preparedness and response to pollution incidents.* The IMO Marine Environment Protection Committee approved the texts of a manual on the assessment of oil spill risks and preparedness and a joint IMO/UNEP manual on the assessment and restoration of environmental damage following marine oil spills.[269] It also continued to urge member States to report any marine casualties and incidents involving hazardous and noxious substances. It approved two introductory IMO model courses on preparedness for, and response to, pollution incidents involving such substances in the marine environment; a revised "train-the-trainer" course on the implementation of the International Convention on Oil Pollution Preparedness, Response and Cooperation; and a guidance document on the identification and observation of spilled oil. Work is also continuing on the development of a manual on chemical pollution to address legal and administrative aspects of incidents involving hazardous and noxious substances; a manual on oil pollution; a manual on incident command systems during oil spill response; and guidelines for oil spill response in fast currents.[270]

2. Air pollution from ships

239. It has been estimated that ships contribute almost half as much particulate matter pollutants as the total amount released by the world's on-road vehicles. Decreases in fuel sulphur used by ships would result in significant decreases in particle mass and number concentrations, which would in turn result in significant human health and environmental benefits.[271]

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[266] MEPC 59/24.

[267] MEPC 58/23.

[268] MEPC 59/24.

[269] MEPC 58/23.

[270] MEPC 59/24.

[271] "Study pertaining to ship emissions' impact on climate change and air quality", IMO document, MEPC 59/INF.15. The study estimated that globally, ships emit about 2.2 million pounds of particle pollution each year.

240. The IMO Marine Environment Protection Committee decided to undertake a general revision of annex VI (Regulations for the Prevention of Air Pollution from Ships) to MARPOL 73/78 shortly after it entered into force, based on new knowledge of the harmful impact that diesel exhausts have on ecosystems and human health, and recognizing that technological developments would allow significant improvements to be made in the standards regulating air pollution from ships.[272] In October 2008, the Committee unanimously adopted amendments to annex VI requiring a progressive reduction in emissions of sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter from ships.[273] The amendments will help establish new global standards to respond to air quality problems experienced in coastal areas across the globe and will apply advanced treatment technologies and other measures that, once implemented, will significantly reduce harmful emissions from ships.[274] The revised MARPOL 73/78 annex VI and the revised NOx Technical Code 2008 will enter into force on 1 July 2010.

241. Regarding information on global sulphur levels, the average sulphur content of tested residual fuel oil decreased from 2.42 per cent in 2007 to 2.37 per cent in 2008. The IMO Marine Environment Protection Committee noted several factors that could have led to an increased number of low sulphur samples and thereby a lower average sulphur level, which would not reflect an actual reduction in global sulphur content.[275] The reported three-year rolling average for 2006 to 2008 was 2.46 per cent compared with the previous three-year rolling average for 2005 to 2007 of 2.57 per cent.[276]

242. In July 2009, the IMO Marine Environment Protection Committee adopted a comprehensive package of guidelines on the revised MARPOL 73/78 annex VI to assist administrations in preparing for the entry into force and subsequent implementation and enforcement of the revised regulations, including: revised guidelines for the sampling of fuel oil for determination of compliance with annex VI; revised guidelines for monitoring the worldwide average sulphur content of residual fuel oils;[277] guidelines for the development of a volatile organic compound management plan; and revised guidelines for exhaust gas cleaning systems.[278] The Committee also adopted a resolution on amendments to the survey guidelines under the harmonized system of survey and certification for the revised MARPOL 73/78 annex VI.[279]

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[272] IMO contribution.

[273] The global sulphur cap will be reduced initially to 3.50 per cent (from the current 4.50 per cent), effective 1 January 2012, and then progressively to 0.50 per cent, effective 1 January 2020, subject to a feasibility review to be completed no later than 2018. Limits applicable in emission control areas would be reduced to 1.00 per cent (from the current 1.50 per cent), effective 1 July 2010, and further reduced to 0.10 per cent, effective 1 January 2015. See MEPC 58/23 and MEPC 58/23/Add.1, annex 13. See also A/64/66/Add.2 and A/63/63/Add.1, paras. 173-177.

[274] IMO contribution.

[275] For example, ships taking on board smaller quantities of low-sulphur fuel oil for consumption within sulphur emission control areas, and more frequent tests of low-sulphur fuel oil to secure compliance.

[276] "Prevention of air pollution from ships: sulphur monitoring for 2008", Note by the secretariat, IMO document, MEPC 59/4/1.

[277] These guidelines would be further revised to cover all marine fuels.

[278] MEPC 59/24.

[279] Report of the IMO Subcommittee on Flag State Implementation to the IMO Maritime Safety Committee and the IMO Marine Environment Protection Committee, IMO document, FSI 17/20, annex 3; MEPC 59/24.

243. In addition, the IMO Marine Environment Protection Committee approved a proposal to designate an emission control area for the coastal waters of Canada and the United States for the control of emissions of NOx, SOx and particulate matter, under the revised annex VI.[280] The draft amendments to the revised annex VI concerning the proposed control area will be submitted to the Committee in 2010 for adoption.

E. Introduction of invasive alien species

244. It has been estimated that approximately 10 billion tons of ballast water are being transferred globally each year, and that more than 3,000 species of plants and animals are being transferred daily.[281] Recent evidence has suggested that, in some regions, more than 50 per cent of marine introductions have occurred through the biofouling pathway.[282]

245. IMO has responded to this challenge by adopting, in 2004, the International Convention for the Control and Management of Ships' Ballast Water and Sediments and by establishing a correspondence group to develop international measures to minimize the transfer of such species through biofouling of ships.[283]

246. The IMO Marine Environment Protection Committee has adopted a number of measures to assist in the effective implementation of the Ballast Water Management Convention. In October 2008, it adopted guidelines for ballast water sampling and revised guidelines for approval of ballast water management systems.[284] The Committee also approved guidance on arrangements for responding to emergency situations involving ballast water.[285] In July 2009, the Committee approved "Guidance to ensure safe handling and storage of chemicals and preparations used to treat ballast water and the development of safety procedures for risks to the ship and crew resulting from the treatment process".[286]

247. The IMO Marine Environment Protection Committee has also considered the availability of ballast water treatment technologies.[287] As at July 2009, six ballast water management systems had received type-approved certification.[288] At its fifty-ninth session, the Committee noted that ballast water treatment technologies were

[280] MEPC 59/24. The emission control area was expected to save as many as 8,300 lives and provide relief from respiratory symptoms for over three million people each year. In total, the monetized health-related benefits of the proposed emission control area were estimated to be as high as $60 billion in the United States in 2020 (see www.epa.gov/otaq/regs/nonroad/marine/ci/420f09015.htm).

[281] See www.imo.org/home.asp and A/62/66/Add.2, para. 34, and A/63/63/Add.1, paras. 182-190. See also MEPC 59/2/20.

[282] Address by Efthimios E. Mitropoulos, Secretary-General of IMO, to the International Conference on Biofouling and Ballast Water Management, Goa, India, 5 February 2008.

[283] Contribution of IMO. As at 30 June 2009, 18 States had ratified the Convention, representing approximately 15.36 per cent of the world's merchant shipping tonnage.

[284] MEPC 58/23, annexes 3 and 4.

[285] MEPC 58/23.

[286] MEPC 59/24.

[287] The specific requirements for ballast water management are contained in regulation B-3, Ballast Water Management for Ships.

[288] See lists of ballast water management systems that received type-approval certification, or basic or final approval as at July 2009 (www.imo.org/home.asp).

available and were currently being fitted on board ships. It concluded that there were sufficient type-approved ballast water treatment technologies available for ships subject to regulation B-3.3 constructed in 2010 and that no changes to resolution A.1005(25) were needed.[289]

248. As part of the Global Invasive Species Programme, mandated by the Convention on Biological Diversity to raise awareness about invasive species issues and build capacity at the national and regional levels, the World Bank and the Netherlands piloted the first training in East Africa on the management and control of marine and coastal invasive species.[290] The GEF-UNDP-IMO Global Ballast Water Management Programme is implementing a country profile database and research and development directory to provide information on ballast water management activities in various countries, including existing projects worldwide on ballast water management and technology development.[291] A global industry alliance for marine biosecurity to address the threats of marine bioinvasions caused by the transfer of alien plants and animals in ballast tanks of ships has recently been established.[292]

249. The International Council for the Exploration of the Sea-IOC-IMO Working Group on Ballast and other Ship Vectors works to improve the knowledge base for control of harmful organisms and pathogens in ballast water. It reviews shipping vectors, is preparing a ballast water sampling manual and is working on a draft code of best practice for the management of ships hull fouling and a code of best practice for port sampling. The draft manuals and codes of practice are scheduled to be finalized by the entry into force of the Ballast Water Management Convention. In the meantime, they have been circulated to Member States as drafts in order to serve as background for countries already designing or implementing national legislation on ballast water and invasive species. For recent developments at the regional level, see paragraphs 306 and 327 below.

250. *Biofouling and antifouling systems for ships*. There are currently no international measures in place to address the introduction of invasive aquatic species through biofouling of ships. The International Convention on the Control of Harmful Anti-fouling Systems on Ships does not address the actual issue of biofouling and transfer of species (see also paras. 235-236 above). In October 2008, the IMO Marine Environment Protection Committee approved the inclusion of a new high-priority item in the work of its Bulk Liquids and Gases Subcommittee on the development of international measures for minimizing the transfer of invasive aquatic species through biofouling of ships. The Committee is expected to adopt specific guidelines on this issue in 2010.[293]

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[289] MEPC 59/24.

[290] Contribution of the World Bank.

[291] MEPC 59/24.

[292] The Global Industry Alliance for Marine Biosecurity will be comprised of IMO, UNDP, GEF and four major private shipping corporations (see: http://globallast.imo.org/index.asp). See also A/64/66/Add.2.

[293] IMO contribution and MEPC 59/24.

F. Ocean noise

251. A number of global and regional forums continue to address the potential threat posed by ocean noise to marine ecosystems. Recent developments are also addressed in the report of the Secretary-General, in document A/64/66/Add.2.

252. In July 2009, the IMO Marine Environment Protection Committee invited member Governments to encourage a review of their merchant fleets to identify vessels that would benefit most from efficiency-improving technologies that were also likely to reduce underwater noise output; and to report the outcome of their reviews to the Correspondence Group, which it had re-established.[294]

253. In accordance with General Assembly resolutions 61/222, 62/215 and 63/111, the Division for Ocean Affairs and the Law of the Sea has made available on its website the lists received from Member States of peer-reviewed scientific studies on the impacts of ocean noise on marine living resources. No additional studies have been received since those submitted by Belgium and the United States in June and November 2007, respectively. The Commission for the Protection of the Marine Environment of the North-East Atlantic is continuing its work to assess the impacts of anthropogenic underwater sound in the marine environment.[295]

G. Waste management

254. The relative contribution of disposal of wastes at sea to the overall input of potential pollutants in the oceans is estimated at 10 per cent, while the main source of ocean pollution is land-based activities.[296] Thus, regulation of pollution of the marine environment caused by dumping largely depends on finding solutions for proper waste management in general.

1. Disposal of wastes

255. Both the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the "London Convention") and its 1996 Protocol (the "London Protocol") are in force. The Protocol represents a major change in the regulation of the use of the sea as a depository for waste materials in that, in contrast to the London Convention, dumping is prohibited, except for materials on an approved list.[297] In this regard, the General Assembly encouraged States that had not yet done so to become parties to the London Protocol.[298] In 2008 and 2009, national and regional workshops were held or planned in a number of States to raise awareness of all aspects of the London Protocol, including the legal, economic, technical and administrative requirements and implications of ratification or accession.[299]

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[294] MEPC 59/24, paras. 19.1-19.10. See also A/63/63/Add.1, para. 192.

[295] Report of the meeting of the Commission for the Protection of the Marine Environment of the North-East Atlantic held in June 2009 (document OSPAR 09/22/1-E), paras. 6.20-6.23.

[296] See www.imo.org/home.asp.

[297] Ibid.

[298] For example, General Assembly resolution 62/215, para. 85.

[299] Report of the thirty-second meeting of the Scientific Group of the London Convention and the third meeting of the Scientific Group of the London Protocol, IMO document, LC/SG 32/15.

256. A number of technical guidance documents concerning the disposal of wastes were adopted at the thirtieth Consultative Meeting of Contracting Parties to the London Convention and the third Meeting of Contracting Parties to the London Protocol, held in October 2008. These include revised generic guidelines for the assessment of wastes and other matter; revised specific guidelines for the assessment of inert, inorganic geological material; guidance for the development of action lists and action levels for dredged material; guidelines for the placement of artificial reefs; guidance on managing spoilt cargoes; and guidance on best management practices for removal of antifouling coatings from ships, including tributyltin hull paints.[300] Advice to mariners on spoilt cargoes was developed in collaboration with the IMO Marine Environment Protection Committee.

257. The meetings also reviewed the implementation of the 2004 strategy to improve reporting under the London Convention and the London Protocol and, inter alia, adopted an electronic form for annual reporting on dumping operations at sea, including on carbon dioxide streams storage sites and permits. They noted that since 1975, the overall response rate of contracting parties to requirements for notification and reporting of dumping activities under the London Convention and the London Protocol had remained fairly constant, at about 53 per cent. In reviewing the effectiveness of the London Protocol in protecting the marine environment from dumping activities, the newly constituted compliance group was instructed to review and provide recommendations on improving the rate of reporting under article 9.4 of the London Protocol, as well as article VI (4) of the London Convention.[301] Contracting parties were also urged to provide reports on their dumping activities in 2006 and the IMO secretariat was instructed to publish, in January 2009, the summary report on permits issued in 2005.[302]

258. In terms of technical cooperation and assistance, the meetings adopted an implementation plan for the "Barriers to compliance" project for a number of activities matching initial funding and in kind pledges already received and that could be used by parties to identify activities that may be of particular interest, whether as a donor or recipient. The plan would be revised and updated as additional funding became available.[303] The meetings also recommended that IMO establish a voluntary London Convention and London Protocol technical cooperation trust fund, which would be used to administer new funds only, while existing agreements between individual donors and IMO would continue to be implemented as planned.[304]

259. In May 2009, the Scientific Groups of the London Convention and the London Protocol continued their review of the "Specific Guidelines for Assessment of Bulky Items", and re-established a correspondence group for this purpose, bearing in mind that the activity needed to be completed in 2010.[305] The Scientific Groups agreed to prepare technical guidance to assist contracting parties in developing action lists and

[300] Report of the thirtieth Consultative Meeting and the third meeting of contracting parties, IMO document LC 30/16, including annexes 3, 4, 10 and 11.

[301] LC 30/16, paras. 6.22-6.29, and LC 30/6/1. See also A/63/63/Add.1, para. 198.

[302] LC 30/16. The governing bodies agreed to review the London Convention and London Protocol reporting formats once reviews of reporting formats for several regional conventions had been completed. See also A/63/63/Add.1, para. 198.

[303] LC 30/16, annex 9. See also A/63/63/Add.1, para. 199.

[304] LC 30/16.

[305] LC/SG 32/15.

address the potential effects on human health and the marine environment of wastes listed in annex 1 to the London Protocol, other than dredged material and CO_2 sequestration in sub-seabed geological formations, with a view to completing this work by 2010. To that end, they established an intersessional correspondence group on the development of action lists and action levels for fish wastes, which would compile a draft document for submission to the next meeting of the Scientific Groups in 2010.[306] In their review of dumping reports and efforts to improve reporting, the Scientific Groups reviewed the issue of reporting requirements and data presentation issues of the draft compilation report in general, and agreed to include this task in the future joint work programme and assign it a high priority.[307]

260. As part of the London Convention and Protocol Technical Cooperation and Assistance Programme, IMO/UNEP and the Programme for the Assessment and Control of Pollution in the Mediterranean Region organized a regional workshop, held in Rome from 20 to 22 May 2009, on the promotion of the London and Barcelona Dumping Protocols for Mediterranean countries. The main conclusions for the national level included calling on States to ratify the two dumping protocols, improving coordination between relevant administrations/agencies, considering establishing multisectoral committees/groups, improving enforcement measures and guidelines, and organizing workshops on action levels and regional laboratories.[308]

261. Regarding the regular process, the Scientific Groups decided that the preparation of a substantial contribution from the perspective of the London Convention and London Protocol would now serve as a reference for a planned review of reports to be received under article 9.4.3 of the London Protocol concerning the effectiveness of the administrative and legislative measures taken to implement the Protocol. Once completed, the document would also be sent to inform the regular process.[309]

2. Transboundary movement of wastes

262. As mandated by decision IX/3 adopted at the ninth meeting of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Secretariat of the Basel Convention prepared a report analysing the shortcomings of the current strategic framework and suggested that the new strategic framework for the implementation of the Convention from 2011 to 2020 should focus on long-term solutions based on a life-cycle approach. A draft strategic framework has been prepared and will be published on the Convention website by 31 January 2010 for comments by 30 April 2010. The draft strategic framework is expected to be submitted to the tenth meeting of the Conference of the Parties to the Basel Convention, in 2011, for adoption.[310]

263. As a follow-up to decision IX/26 adopted at the ninth meeting of the Conference of the Parties, a country-led initiative[311] was launched by Indonesia and Switzerland. It is intended to develop recommendations for the tenth meeting of the Conference of the Parties to attain the objectives of the Basel Convention and the

[306] Ibid.
[307] Ibid.
[308] Ibid., paras. 6.28-6.33.
[309] LC/SG 32/15. See also A/63/63/Add.1, para. 293.
[310] A/63/63/Add.1, para. 202.
[311] www.basel.int/convention/cli/index.html.

Ban Amendment, namely to protect countries without adequate capacity to manage hazardous wastes in an environmentally sound manner from unwanted imports of hazardous wastes, and to ensure that the transboundary movements of hazardous wastes, especially to developing countries, lead to an environmentally sound management of hazardous wastes as required by the Basel Convention.

264. With respect to inter-agency cooperation between the Basel Convention and IMO, specific recommendations addressing any gaps between the Basel Convention and MARPOL 73/78 with respect to hazardous and other wastes are expected to be developed. The recommendations are expected to be submitted to the tenth meeting of the Conference of the Parties to the Basel Convention for its consideration.

H. Ship breaking, dismantling, recycling and scrapping

265. The International Convention for the Safe and Environmentally Sound Recycling of Ships (the "Hong Kong Convention") and six resolutions were adopted at an international conference held in May 2009 in Hong Kong, China.[312]

266. The Hong Kong Convention addresses all major issues regarding ship recycling. They include, inter alia, the design, construction, operation and preparation of ships so as to facilitate safe and environmentally sound recycling without compromising the safety and operational efficiency of ships, the operation of ship-recycling facilities in a safe and environmentally sound manner and the establishment of an appropriate enforcement mechanism for ship recycling, incorporating certification and reporting requirements. Ship-recycling yards are required to provide a recycling plan specifying the manner in which each ship will be recycled depending on the ship's particulars and inventory.

267. The Convention will be open for signature at IMO headquarters from 1 September 2009 to 31 August 2010 and will, thereafter, remain open for accession by any State. It will enter into force 24 months after the date on which the following conditions are met: (a) not less than 15 States have either signed it without reservation as to ratification, acceptance or approval, or have deposited the requisite instrument of ratification, acceptance, approval or accession; (b) the combined merchant fleets of such States constitute not less than 40 per cent of the gross tonnage of the world's merchant shipping; and (c) the combined maximum annual ship recycling volume of such States during the preceding 10 years constitutes not less than 3 per cent of the gross tonnage of the combined merchant shipping of the same States.

268. Guidelines are being developed to assist in the implementation of the Hong Kong Convention. Under the Convention, ships sent for recycling should carry an inventory of hazardous materials, which will be specific to each ship. In this regard, the IMO Marine Environment Protection Committee adopted at its fifty-ninth session the guidelines for the development of the inventory of hazardous materials. Progress was also made in developing draft guidelines for safe and environmentally sound ship recycling. These are the first two sets of guidelines intended to assist with the implementation of the Hong Kong Convention and are crucial for its voluntary implementation prior to its entry into force. In addition, following the

[312] IMO documents SR/CONF/45 and SR/CONF/46.

Conference's decision,[313] the Committee also adopted a resolution on the calculation of recycling capacity for meeting the entry-into-force conditions of the Hong Kong Convention.[314]

269. The European Parliament, in its resolution adopted in March 2009, invited European Union member States to ratify the Hong Kong Convention.[315]

270. The Hong Kong Convention has relevance to the work undertaken in the context of other international instruments, in particular the Basel Convention and the ILO guidelines on safety and health in shipbreaking for Asian countries and Turkey.[316] The third session of the Joint ILO/IMO/Basel Convention Working Group on Ship Scrapping was held in October 2008. The Working Group adopted recommendations for interim measures based on the requirements of the Hong Kong Convention to be taken prior to its entry into force in order to assist States in the early ratification of the Convention. The Working Group also identified 10 measures to facilitate the implementation of interim measures, including the voluntary application of the provisions concerning the inventory of hazardous materials; the hosting of workshops on the requirements of the Convention and the technical guidelines; and the promotion of technical assistance programmes.[317] In addition, the Working Group supported the development of the Global Programme for Sustainable Ship Recycling by the three secretariats.[318]

I. Liability and compensation

271. The current international legal regime for liability and compensation for damage from pollution from ships and from the carriage of hazardous and noxious substances, hazardous wastes and nuclear material by sea is based on a number of international instruments. The present section provides information on recent developments relating to some of these.

272. In respect of pollution of the marine environment resulting from sources other than shipping activities, the General Assembly, in paragraph 4 of its resolution 63/211 on the oil slick on Lebanese shores, requested the Government of Israel to assume responsibility for prompt and adequate compensation to the Government of Lebanon and other countries directly affected by the oil slick for the costs of repairing the environmental damage caused by the destruction of the oil storage tanks at El-Jiyeh electric power plant, including the restoration of the marine environment. It also established an Eastern Mediterranean Oil Spill Restoration Trust Fund, based on voluntary contributions, to provide assistance and support to the States directly adversely affected in their integrated environmentally sound management, from clean-up to safe disposal of oily waste, of the environmental disaster resulting from the destruction of the oil storage tanks.

273. *International Convention on Civil Liability for Bunker Oil Pollution Damage*. The Bunkers Convention entered into force on 21 November 2008 and has been

[313] IMO document SR/CONF/CW/RD/5, para. 1.
[314] IMO document MEPC 59/24, para. 3.8.
[315] IMO document MEPC 59/24, para. 3.15.
[316] See A/63/63/Add.1, paras. 206 and 207.
[317] IMO document MEPC 59/INF.2, paras. 160 and 161.
[318] Ibid., paras. 90 and 91.

ratified by 38 countries, representing 75.50 per cent of the world tonnage of merchant shipping.[319] The IMO Legal Committee established a correspondence group with a view to facilitating further ratifications and promoting harmonized implementation of the Convention. The group is mandated to consider a number of issues, including the issuance of certificates to bareboat-registered vessels; whether oil tankers holding certificates issued pursuant to the 1992 Protocol to the 1969 International Convention on Civil Liability for Oil Pollution Damage or covered by the system established under that Convention are required to obtain Bunkers Convention certificates; the issuance of Bunkers Convention certificates to new buildings; insurance and liability for claims where the Convention on Limitation of Liability for Maritime Claims does not apply; and any other issue whose consideration might help efforts to promote wider acceptance and harmonized implementation of the Bunkers Convention.[320]

274. *International Oil Pollution Funds*. In October 2008, the Assembly of the 1992 International Oil Pollution Compensation Fund adopted a policy on the deferment of compensation payments to States which have outstanding oil reports.[321] It also instructed the Director of the Fund not to pursue the possibility of including the 1992 Civil Liability Convention and the 1992 Fund Convention in the IMO Voluntary Audit Scheme (see paras. 92 and 93 above) at this stage, but decided that the issue should remain part of the Fund secretariat's ongoing communication with IMO, with a view to exploring whether and at what point in the future the 1992 Conventions could usefully be incorporated in the Scheme.[322]

275. The Executive Committee of the 1992 Fund continued to consider matters related to the *Erika* (France, 1999), *Slops* (Greece, 2000), *Prestige* (Spain, 2003), *Nº7 Kwang Min* (Republic of Korea, 2005), *Solar 1* (Philippines, 2006), *Shosei Maru* (Japan, 2006), *Volgoneft 139* (Strait of Kerch, 2007) and *Hebei Spirit* (Republic of Korea, 2007) incidents. It started consideration of the incident in which a significant quantity of oil had impacted part of the shoreline of Argentina in 2007. With regard to the *Erika*, the Executive Committee noted the judgement of the European Court of Justice of 24 June 2008 and the subsequent decision of the French Supreme Court in December 2008 that fuel oil, once spilled and mixed with sea water and sediments, became a "waste" under European law. The French Supreme Court had also decided that the seller of that fuel oil and charterer of the ship carrying it could be regarded as a producer and as a previous holder of that waste, if it was established that the seller/charterer had contributed to the risk of pollution caused by the shipwreck. Furthermore, the Court had decided that under certain circumstances the producer of the product from which the waste emanated could be required to bear the cost of disposal if it was established that the producer had contributed to the risk of pollution. The Fund also noted that the precedents created in view of those decisions were only applicable within the European context.[323]

[319] See www.imo.org/.

[320] IMO document, LEG 95/10.

[321] Document 92FUND/Circ.63. The policy applies as of 28 April 2009.

[322] Record of decisions of the thirteenth session of the Assembly, document 92FUND/A.13/25.

[323] Record of decisions of the forty-fourth session of the Executive Committee, document 92FUND/EXC.44/10.

276. In relation to the *Slops* case (see A/63/63/Add.1, para. 211), the Executive Committee decided that no recourse action should be brought against Greece since the latter had respected the various policies established by the Fund at the time of the incident.[324] However, in light of the potential for unequal treatment as a result of different interpretations of the definition of "ship", the Director of the Fund was instructed to further examine the Fund's policy on the definition of "ship" and to present a document for consideration by the Assembly at its next session in October 2009.

277. In the *Prestige* incident, by a decision of March 2009, the Criminal Court in Corcubión (Spain) exonerated from prosecution the civil servant who had been involved in the decision not to allow the ship into a place of refuge in Spain. The Court, however, decided to continue the proceedings against the Master, Chief Officer and Chief Engineer of the *Prestige*. The decision has been appealed.[325] In respect of legal proceedings in the United States of America (see A/63/63/Add.1, para. 212), the Court of Appeal, in a decision of June 2009, reversed both the dismissal of Spain's claim and the dismissal of the counterclaim by the classification society. The secretariat of the Fund will examine the text of the Court of Appeal's decision and report to the Committee at its session in October 2009.[326]

278. In respect of the *Volgoneft 139* incident, differences of views between the Fund and the Government of the Russian Federation in respect of a number of issues, including the cause of the incident, were the subject of consultations.[327] Consultations were also ongoing between the Fund and the Government of the Republic of Korea in the *Hebei Spirit* incident regarding the reasonableness of the period for the fishing restrictions and consequent claims for loss of income suffered by the fishermen.[328]

279. With regard to the 1971 International Oil Pollution Compensation Fund, outstanding third party claims exist in respect of seven incidents and recourse actions taken by the 1971 Fund in respect of two incidents are also pending. These developments along with outstanding oil reports and arrears in contributions impede a near-term winding up of the 1971 Fund.[329]

280. The Intersessional Working Group on non-technical measures to promote quality shipping for carriage of oil by sea (see A/63/63/Add.1, para. 213), at its meetings in March and June 2008, completed its work and noted that insufficient support had been expressed for further work on a number of issues, including denial or withdrawal of Civil Liability Convention certificates, hull insurance and economic incentives for quality shipowners.[330]

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[324] Record of decisions of the forty-second session of the Executive Committee, document 92FUND/EXC.42/14.

[325] Document 92FUND/EXC.45/3.

[326] Record of decisions of the forty-fifth session of the Executive Committee, document 92FUND/EXC.45/8.

[327] Ibid.

[328] Ibid.

[329] Record of decisions of the twenty-third session of the Administrative Council, document 71FUND/AC.23/18.

[330] Record of decisions of the thirteenth session of the Assembly of the 1992 Fund, document 92FUND/A.13/25. See also report on the fifth meeting of the fourth Intersessional Working Group, document 92FUND/A.13/21/1.

281. *Hazardous and Noxious Substances Convention*. In June 2009, the Administrative Council acting on behalf of the Assembly of the 1992 Fund took note of developments in respect of the preparations for the entry into force of the Hazardous and Noxious Substances Convention, including the approval by the IMO Legal Committee of a draft protocol to that Convention.[331] The draft protocol is designed to address practical problems that have prevented many States from ratifying the Convention. A diplomatic conference to adopt the protocol is expected to be convened in 2010.

282. *Liability for nuclear damage*. In June 2009, the International Expert Group on Nuclear Liability reaffirmed its support for the establishment of a global nuclear liability regime. It considered information regarding the decision of the Contracting Parties to the Paris Convention on Third Party Liability in the Field of Nuclear Energy to the effect that, when ratifying the 2004 Protocol to the Paris Convention, a party would make a reservation to the Paris Convention providing for reciprocity in the implementation of the Convention, in particular with regard to compensation amounts. The Group reaffirmed its conclusions regarding the alternatives considered by the European Commission to achieve a uniform European Union regime on nuclear third party liability (see A/63/63/Add.1, para. 216).[332]

J. Area-based management tools

283. Area-based management tools are increasingly used to promote the conservation and sustainable use of marine areas and resources. The present section provides information on developments relating to area-based management tools, in particular marine spatial planning, marine protected areas, MARPOL 73/78 special areas and particularly sensitive sea areas, emissions control areas, world heritage sites and biosphere reserves. Information on developments relating to area-based management tools beyond areas of national jurisdiction is provided in document A/64/66/Add.2, while information on fisheries closures is provided in document A/64/305.

284. A recent example of the use of area-based management in a multilateral context is provided by the launch, at the Coral Triangle Summit in May 2009, of the Coral Triangle Initiative on coral reefs, fisheries and food security. The leaders of six countries[333] officially launched the Initiative to address threats to the marine, coastal and small islands ecosystems within the Coral Triangle region through accelerated and collaborative action, taking into consideration multi-stakeholder participation in the six countries.[334] The Initiative focuses on areas of cooperation in relation to coral reefs, fisheries, food security and adaptation to climate change. At the Summit, the leaders also agreed to adopt a regional plan of action to conserve and sustainably manage coastal and marine resources in the region.

285. *Marine protected areas*. The 2009 report on the Millennium Development Goals indicates that less than 1 per cent of the world's oceans are currently protected. Moreover, even where they exist, protected areas can be poorly managed

[331] Record of decisions of the fifth session of the Administrative Council acting on behalf of the fourteenth extraordinary session of the Assembly, document 92FUND/AC.5/A/ES.14/9. See also IMO document LEG 95/10.

[332] IAEA document GOV/2009/48-GC(53)/2.

[333] Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste.

[334] Coral Triangle Initiative leaders' declaration on coral reefs, fisheries and food security.

and face continued assault from pollution and climate change, irresponsible tourism, infrastructure development and increasing demands for resources.[335] The tenth Global Meeting of the Regional Seas Conventions and Action Plans in November 2008 recognized that there were different views about marine protected areas and that there was scope for reconciling, for example, environment and fisheries interests.[336] As stated in the 2008 Valencia Declaration,[337] when effectively designed, managed and enforced, marine protected areas can deliver many ecological and socio-economic benefits as well as build the resilience of marine ecosystems in the face of increasing global pressures. The Declaration called for ecologically coherent networks of marine protected areas to be developed at an urgent and accelerated pace based on existing scientific data and understanding.

286. The 2009 Manado Ocean Declaration (see para. 345 below) also underlined the importance of establishing and effectively managing marine protected areas, including representative resilient networks, in accordance with international law, as reflected in the United Nations Convention on the Law of the Sea, and on the basis of the best available science, recognizing the importance of their contribution to ecosystem goods and services, the effort to conserve biodiversity, sustainable livelihoods and adaptation to climate change.[338]

287. Other recent meetings that have addressed issues related to marine protected areas include the second International Marine Protected Areas Congress, held in conjunction with the International Marine Conservation Congress, in May 2009.[339] The former Congress addressed, through a number of panels, themes such as global climate change, land-sea interface, ecosystem-based management, poverty and globalization, as well as cross-cutting issues such as marine protected areas, education and outreach, capacity-building, governance arrangements, fisheries and aquaculture and economics.

288. The first International Conference on Marine Mammal Protected Areas[340] was held in March 2009 to discuss issues relating to the establishment of networks of marine protected areas to conserve marine mammals and their habitat. The Conference also focused on issues relating to the design, management and networking of mammal marine protected areas.

289. A new decision-making tool, the World Database on Marine Protected Areas, was launched by the UNEP World Conservation Monitoring Centre and the International Union for Conservation of Nature to provide the most current and relevant information about marine and coastal biodiversity and its protection status. This tool provides the most comprehensive set of marine protected areas data available.[341]

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[335] *The Millennium Development Goals Report 2009* (United Nations publication, Sales No. E.09.I.12).

[336] See the report of the tenth Global Meeting of the Regional Seas Conventions and Action Plans, at www.unep.org/regionalseas/globalmeetings/10/final_10thmeeting_report.pdf.

[337] Valencia Declaration of the World Congress of Marine Biodiversity, November 2008, available at www.marbef.org/worldconference/declaration.php.

[338] ADB contribution.

[339] The proceedings of the Congress are available at www2.cedarcrest.edu/imcc/index.html.

[340] See www.icmmpa.org.

[341] www.wdpa-marine.org.

290. *MARPOL 73/78 special areas and particularly sensitive sea areas*. The Mediterranean Sea Special Area under MARPOL 73/78 annex V came into effect on 1 May 2009. In its consideration of Antarctic shipping, the IMO Marine Environment Protection Committee endorsed the Antarctic and Southern Ocean Coalition's proposal to host a workshop in 2009 to address both risks and routine operations and begin identifying appropriate mitigation measures.[342]

291. As a consequence of changes to new vessel traffic services established along the Portuguese Iberian coast and the adoption of a new mandatory ship reporting system "Off the coast of Portugal" by IMO Maritime Safety Committee resolution MSC.278 (85),[343] the IMO Marine Environment Protection Committee adopted amendments to annex 2 (Relevant rules and regulations in force in the Western European Waters particularly sensitive sea area) to resolution MEPC.121(52), which had designated the Western European Waters as a particularly sensitive sea area. Amendments to the existing mandatory ship reporting systems for the Papahānaumokuākea Marine National Monument particularly sensitive sea area[344] (see A/63/63/Add.1, para. 226) took effect on 1 June 2009.[345]

292. *Emissions control area*. The IMO Marine Environment Protection Committee, in July 2009, approved a proposal to designate specific portions of the coastal waters of the United States and Canada as an emission control area (see para. 243 above).

293. *World heritage sites*. In June 2009, the World Heritage Committee added part of the Wadden Sea to the UNESCO World Heritage List. The inscribed site[346] represents over 66 per cent of the whole Wadden Sea and is home to marine mammals such as the harbour seal, grey seal and harbour porpoise. It is also a breeding and wintering area for birds. The site is one of the last remaining natural, large-scale, intertidal ecosystems where natural processes continue to function largely undisturbed. With the addition of the Tubbataha Reefs Natural Park in the Philippines to the Tubbataha Reef Marine Park inscribed on the List in 1993, the original site has been increased threefold. The Belize Barrier Reef Reserve System, inscribed on the List in 1996, was placed on the List of World Heritage in Danger. The Committee requested stricter control of developments on the site and the reinstatement of the moratorium on mangrove cutting which expired in 2008.[347]

294. *Biosphere reserves*. In May 2009, the International Coordinating Council of the Man and the Biosphere Programme added a number of marine and coastal sites to the World Network of Biosphere Reserves, including the island of Fuerteventura in the Canaries archipelago (Spain), characterized by a rich diversity of marine species, including dolphins, cachalots and marine turtles; Flores Island (Portugal), part of the Western group of the Azores archipelago, which represents the non-submerged part of a seamount close to the Mid Atlantic Rift; Delta del Orinoco (Venezuela), home to a wide array of land and water fauna; Shinan Dadohae

[342] IMO document MEPC 58/23.

[343] The system entered into force at 0000 hours UTC on 1 June 2009.

[344] Resolution MSC.279(85) of the IMO Maritime Safety Committee.

[345] IMO document MEPC 59/WP.12.

[346] The site comprises the Dutch Wadden Sea Conservation Area and the German Wadden Sea National Parks of Lower Saxony and Schleswig-Holstein.

[347] Report of decisions, World Heritage Committee, thirty-third session, document WHC-09/33.COM/20.

(Republic of Korea), which comprises an island archipelago and includes marine areas and tidal flats; Great Sandy (Australia), a terrestrial, coastal and marine area featuring the largest rainforest standing on sand in the world; Mui Ca Mau (Viet Nam), marking the boundary between mangrove and Melaleuca forests, and a reproduction and breeding area for marine species; and Cu Lao Cham — Hoi An (Viet Nam), a coastal, island and marine site known for its marine species such as corals, molluscs, crustaceans and seaweed.[348]

295. *Marine spatial planning*. Marine spatial planning is a process that analyses and allocates the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives specified through a political process.[349] In that regard, the tenth Global Meeting of the Regional Seas and Action Plans recognized that area-based management and marine spatial planning could result in a competitive use of marine space, highlighting the need for cross-sectoral planning. The new IOC publication "Marine spatial planning: a step-by-step approach towards ecosystem-based management" provides a step-by-step approach to marine spatial planning and describes the benefits and expected result of its application.[350] The Baltic Marine Environment Protection Commission has been carrying out work towards implementing broad-scale marine spatial planning according to its Baltic Sea Action Plan and recommendation 28E/9. The Commission's broad-scale marine spatial planning principles for the Baltic Sea area project, funded by the European Union, helps Baltic Sea coastal States to carry out the needed actions and has developed a Web-based GIS portal containing a wide variety of data related to marine spatial planning in the Baltic Sea region.

K. Regional cooperation

1. Introduction

296. The tenth Global Meeting of Regional Seas Conventions and Actions Plans, in November 2008, highlighted future priorities for UNEP, including climate change, ecosystem management, cooperation with multilateral environmental agreements, sustainable financing and legal instruments to further the implementation of Regional Seas' work programmes, and strategic directions for 2008-2012. While climate change was not on the agenda of most regional seas conventions when initially negotiated, the Meeting agreed that they all had a mandate to address it through revised strategies or new action plans.[351]

297. Within the context of the UNEP Global Initiative on Marine Litter, activities initiated by the Regional Seas Programme were completed in 2008 in 12 participating Regional Seas.[352] All 12 of them prepared documents on the review of

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[348] UNESCO press release, "22 new sites join the UNESCO World Network of Biosphere Reserves", 26 May 2009.

[349] UNESCO marine spatial planning initiative at www.unesco-ioc-marinesp.be/.

[350] IOC Manuals and Guides No. 53.

[351] See medwaves e-newsletter, November-December 2008, available at www.unepmap.org/index.php?module=library&mode=pub&action=view&id=14489.

[352] Baltic Sea, Black Sea, Caspian, East Asian Seas, Eastern Africa, Mediterranean Sea, Northwest Pacific, Northeast Atlantic, Red Sea and Gulf of Aden, South Asian Seas, Southeast Pacific and Wider Caribbean.

the status of marine litter in their region and seven of them prepared regional action plans on management of marine litter.[353]

2. Antarctic

298. The thirty-second Antarctic Treaty Consultative Meeting, held in April 2009, marked the fiftieth anniversary of the opening for signature of the Antarctic Treaty. The Consultative Parties, inter alia, agreed to cooperate to enhance protection of the marine ecosystem, to seek the views of the Commission for the Conservation of Antarctic Marine Living Resources on the possibility of asking IMO to extend the Antarctic Special Area northward to the Antarctic Convergence, and to consider the Commission's views at their next meeting. They agreed to a proposal by Norway to host an Antarctic Treaty meeting of experts in 2010 on the implications of climate change for the management and governance of Antarctica. They also adopted resolutions regarding tourism in the Antarctic and biological prospecting.[354]

299. The Committee for Environmental Protection of the Antarctic Treaty plans to undertake a study of the environmental aspects and impacts of tourism and non-governmental activities in Antarctica. In respect of marine spatial protection and management, the Committee agreed to develop a strategy and work towards the establishment of effective, representative and coherent protection of biodiversity within the Antarctic Treaty area within the next three years.[355] The Committee also held its first joint workshop with the Scientific Committee of the Commission for the Conservation of Antarctic Marine Living Resources in 2008.[356] In light of concerns regarding the impact of steady growth of international shipping, the IMO Marine Environment Protection Committee, in July 2009, approved draft amendments to MARPOL 73/78 to ban the use of heavy-grade oils in the Antarctic area, to be adopted at its session in 2010, and decided to develop a mandatory code for ships operating in polar waters by 2012.[357]

300. The International Polar Year 2007-2008 provided a platform for scientific cooperation to build knowledge and understanding of the polar regions. It demonstrated the need for further research and sustained efforts, as reflected in the resolution adopted by the Antarctic Treaty Consultative Meeting on ensuring the legacy of the International Polar Year. A joint meeting of the Arctic Council and the States parties to the Antarctic Treaty, held in April 2009, adopted, inter alia, a Declaration on the International Polar Year and Polar Science.[358] A workshop will be held in Norway in June 2010 to propose next steps for consideration by the thirty-fourth Antarctic Treaty Consultative Meeting.[359]

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[353] UNEP contribution.

[354] See final report of the thirty-second Antarctic Treaty Consultative Meeting, available at www.ats.aq/devAS/ats_meetings_meeting.aspx?lang=e. The Washington Ministerial Declaration on the Fiftieth Anniversary of the Antarctic Treaty was adopted on 6 April 2009.

[355] Ibid., paras. 84 and 97.

[356] See report of the joint workshop available at www.ats.aq/devAS/ats_meetings_documents.aspx.

[357] IMO document MEPC 59/24.

[358] Scientific Committee on Arctic Research, "International Polar Year report: accomplishments and challenges", available at www.scar.org/treaty/atcmxxxii/Atcm32_wp048_e-4.pdf.

[359] See final report of the Consultative Meeting, note 354 above, paras. 154-157.

3. The Arctic

301. During the reporting period, a number of meetings and conferences addressed Arctic issues.[360] In November 2008, the European Commission adopted a communication on "The European Union and the Arctic Region" which set out a policy based on three main policy objectives: protecting and preserving the Arctic together with its population; promoting the sustainable use of resources; and enhancing multilateral governance in the region.[361]

302. The Arctic Council sponsored a major study of shipping in the Arctic and its effects on the marine environment as well as Arctic communities.[362] The Arctic Marine Shipping Assessment 2009 report recognized the particularly sensitive nature of the Arctic environment and the possibility that increased shipping might negatively affect it. It noted that the law of the sea as reflected in the United Nations Convention on the Law of the Sea, in article 234, provided a fundamental framework for the governance of Arctic marine navigation and allowed coastal States the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered waters, and that IMO is the competent United Nations agency with responsibility for issues related to the global maritime industry. The report's recommendations included support for IMO measures relating to shipping in the Arctic, possible harmonization of Arctic marine shipping regimes, identification of areas of heightened ecological and cultural significance, designation of Arctic marine protected areas and development of an Arctic marine traffic system.

303. The Tromsø Declaration adopted by the Arctic Council in April 2009 addresses such issues as climate change in the Arctic, the legacy of the International Polar Year, the Arctic marine environment, health and human development in the Arctic region, energy issues, environmental contaminants, biodiversity in the Arctic and governance. With respect to the marine environment, members of the Arctic Council, inter alia, approved the recommendations of the Arctic Marine Shipping Assessment report, the establishment of a task force to develop an international instrument on search and rescue operations in the Arctic, revised guidelines for offshore oil and gas, a revised Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-Based activities,[363] and welcomed a

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[360] For example, the Arctic Conference: Common Concern for the Arctic (9 and 10 September 2008, Ilulissat, Greenland), International Symposium Looking Beyond The International Polar Year: Emerging And Re-Emerging Issues In International Law And Policy In The Polar Regions (7-10 September 2008, University of Akureyri, Iceland), On Thin Ice: Addressing the Scientific, Environmental, Cultural and Security Implications of Climate Change in the Arctic Region (8-9 December 2008, Monterey, United States of America), the Vanderbilt University Arctic Symposium (6 February 2009), and Melting Ice: Regional Dramas, Global Wake-Up Call (Tromsø, Norway, 28 April 2009). On 9 October 2008, the European Parliament adopted a resolution on Arctic governance, suggesting inter alia, that the European Commission should be prepared to pursue the opening of international negotiations designed to lead to the adoption of an international treaty for the protection of the Arctic (www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2008-0474+0+DOC+XML+V0//EN).

[361] http://ec.europa.eu/maritimeaffairs/arctic_overview_en.html.

[362] Arctic Marine Shipping Assessment 2009 report, available at http://arcticportal.org/uploads/4v/cb/4vcbFSnnKFT8AB5IXZ9_TQ/AMSA2009Report.pdf.

[363] http://arcticportal.org/uploads/sa/F-/saF-BQayQQg1ioX1LjRQ7Q/RPA-2009.pdf.

report of the project on best practices in ecosystems-based oceans management in the Arctic. They also endorsed the summary of observed best practices.[364]

4. Baltic Sea

304. The Baltic Marine Environment Protection Commission focused its work on the implementation of the Baltic Sea Action Plan, which aims to drastically reduce pollution and restore the good ecological status of the Baltic by 2021 and serves as the major tool for implementing the ecosystem approach in the Baltic. The inaugural meeting of the Commission's Fisheries and Environmental Forum, held in September 2008, produced a statement on the general implementation status of marine protected areas in the area, with a specific focus on fisheries management measures.[365] The Commission released major thematic assessments on eutrophication and biodiversity and developed a Web-based GIS portal for marine spatial planning.[366] It also made two submissions to IMO calling for tighter international regulations to decrease NOx and SOx emissions from ships.

305. The Commission developed a new recommendation on mutual plans for places of refuge, which was expected to be adopted by the ministerial meeting in May 2010, to ensure that ships needing assistance were granted the most suitable shelter and to create a harmonized legal compensation and liability regime in the Baltic (see also para. 101 above).

306. During 2008-2009, the States bordering the Baltic Sea and the North Sea agreed on voluntary guidance which requested vessels coming from certain routes to the Baltic Sea or North Sea, or leaving the Baltic Sea and transiting the North Sea, to carry out ballast water exchange on a voluntary basis in waters of specific depth and distance from the coast according to the Ballast Water Management Convention.[367] The Baltic Marine Environment Protection Commission developed a list of non-indigenous, cryptogenic and harmful native species in the Baltic Sea, as well a list of target species that might impair or damage the environment, human health, property or resources in the Baltic Sea, which were to support the implementation of the Convention. Baltic Sea countries have agreed to ratify the Convention no later than 2013.[368]

5. Black Sea

307. In April 2009, parties to the Convention on the Protection of the Black Sea against Pollution adopted the 2009 Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities.[369] The Protocol aims to prevent, control and to the maximum extent possible eliminate pollution from land-based sources and activities in order to achieve and maintain a good ecological status of the Black Sea, including its marine and coastal ecosystems.

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[364] http://arcticportal.org/uploads/24/cD/24cDkogk-PQf4dHZKuAzwg/PAME-Progress-Report-on-Ecosystem-Approach.pdf.

[365] www.helcom.fi/press_office/news_helcom/en_GB/Fish_Env_Forum_1/.

[366] www.helcom.fi/publications/en_GB/publications/ and www.helcom.fi/GIS/en_GB/HelcomGIS/. See also contributions of the Commission and UNEP.

[367] IMO circular BWM.2/Circ.14.

[368] Contribution of the Commission.

[369] See www.blacksea-commission.org/_minmeetingsofia2009.asp.

308. In 2009, the Black Sea Commission issued publications on the implementation of the Strategic Action Plan for the Protection and Rehabilitation of the Black Sea and the state of the environment of the Black Sea.[370] The Strategic Action Plan, adopted in April 2009, identifies four priority transboundary problems for the region: eutrophication/nutrient enrichment; changes in marine living resources; chemical pollution (including oil); and biodiversity/habitat changes, including the introduction of alien species.[371] In order to address these and other concerns, the Black Sea coastal States agreed to adhere to integrated coastal zone management, the ecosystems approach and integrated river basin management.

6. Caspian Sea

309. The second Conference of the Parties to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea was held in November 2008. It considered the interrelationship between fisheries and the protection of the marine environment of the Caspian Sea and agreed on the need to further explore possibilities for strengthening cooperation for the conservation and rational use of the aquatic bioresources of the Caspian Sea. The parties reaffirmed their intention to finalize the negotiations on four priority protocols for adoption in 2010: (a) biodiversity conservation; (b) regional preparedness, response and cooperation in combating oil pollution incidents; (c) pollution from land-based sources activities; and (d) environmental impact assessment in transboundary context.[372]

7. East Asian and South Asian Seas

310. The East Asian Seas Conference, to be held in November 2009, will feature a ministerial forum focusing on means of enhancing social, economic and ecosystem resilience to climate change through adaptation programmes, a conference on sustainable coastal and oceans development and an exhibition on good practices and innovative technologies.[373]

311. A South Asia marine and coastal protected areas toolkit was developed at a regional training workshop in June 2008. It is intended to provide up-to-date information and practical guidance on a wide range of issues related to the management of such areas.[374] In August 2008, the South Asia Coral Reef Task Force discussed the development of a strategy providing for a uniform approach to coral reef management. A regional training programme on marine resources sampling, data collection and interpretation for South Asia seas is scheduled to be held in September 2009 in India.

8. Mediterranean Sea

312. A report on the state of the environment and development in the Mediterranean will be submitted to the Contracting Parties to the Convention for the Protection of

[370] UNEP contribution.

[371] See Declaration of the Ministers of the Environment of the Contracting Parties to the Convention on the Protection of the Black Sea against Pollution on Strengthening the Cooperation for the Rehabilitation of the Black Sea Environment, Sofia, 17 April 2009.

[372] See report of the meeting, TC/COP2/INF.5.

[373] http://pemsea.org/eascongress.

[374] www.southasiamcpaportal.org/toolkit/index.html.

the Marine Environment and the Coastal Region of the Mediterranean and its Protocols in November 2009.[375]

313. Through the implementation of the Mediterranean Strategy for Sustainable Development, the Mediterranean Action Plan continues to mainstream environmental protection and sustainable development into national strategies for the elimination of pollution, safeguarding of biodiversity and coastal zone management. Drawing on the results of analyses conducted in 2007 and 2008 on energy and climate change in the region, the Mediterranean Action Plan intends to identify those energy systems most apt for encouraging adaptation to climate change. National overviews of vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean region have been prepared.[376]

314. At its meeting in January 2009, the Working Group of Legal and Technical Experts on the implementation of the guidelines for the determination of liability and compensation for damage resulting from pollution of the marine environment in the Mediterranean Sea area adopted a programme of action to facilitate the implementation of the guidelines, including through the strengthening of national institutional capacity and inter-institutional coordination.[377]

315. The Mediterranean Hot Spot Investment Programme is being implemented within the framework of the Horizon 2020 initiative[378] to depollute the Mediterranean. Projects that will facilitate investment in pollution-reduction efforts in the sectors of municipal waste, industrial emissions and urban wastewater have already been identified.[379]

9. North-east Atlantic

316. The Commission for the Protection of the Marine Environment of the North-East Atlantic is concentrating on the preparation of its quality status report 2010 and the underlying assessments, which will be presented to the ministerial meeting in September 2010. The quality status report underpins a review of the Commission's strategies, including the development of a new ecosystem approach strategy, which will recognize the need for the Commission to facilitate implementation of the European Union's marine strategy framework directive.

317. As part of the quality status report process, the Commission has already finalized a series of assessments of the impact of human activities on the marine environment. In 2008, it published a second integrated report on the eutrophication status, which highlighted that eutrophication was still a problem in specific areas. It also published an assessment of estimated losses of selected hazardous substances from ships' coatings and made monitoring of tributylin concentrations in sediment or biota a mandatory part of the coordinated environmental monitoring programme to be carried out in parallel with the monitoring of tributylin-specific biological effects. The Commission also carried out work on a risk-based approach to the

[375] www.pap-thecoastcentre.org/itl_news.php?lang=en&godina=2009#273.
[376] UNEP contribution.
[377] The report of the meeting is contained in document UNEP (DEPI)/MED WG.329/4 at http://www.unepmap.org/index.php.
[378] See A/62/66, para. 308.
[379] UNEP contribution.

management of produced water from offshore installations.[380] Other developments relating to the Commission are presented in A/64/66/Add.2.

10. North-west Pacific

318. The Regional Coordinating Unit of the UNEP North-West Pacific Action Plan and four regional activity centres continued working on issues such as harmful algal blooms, input of pollutants from land-based sources and accidental spills of oil and hazardous chemicals. Future activities will also cover climate change adaptation, biodiversity conservation and invasive species management. In particular, the Unit has been developing a coastal environment assessment methodology emphasizing land-based sources of nutrients and using biodiversity indicators and remote sensing data. Remote sensing is used for monitoring oil spills and harmful algal blooms. Previously compiled data and information on marine and coastal biodiversity in the region and on marine protected areas have been recently updated and linked to the World Database on Protected Areas (see para. 289 above).[381]

319. The North-West Pacific Action Plan has adopted the regional action plan on marine litter and started its implementation at the national level.[382] This process has been further facilitated by the publication of guidelines on marine litter management, and by international coastal clean-up campaigns and workshops.[383]

320. At the thirteenth intergovernmental meeting of the Action Plan, in October 2008, the revised regional oil and hazardous and noxious substances spill contingency plan was put into effect.[384] At that meeting, the Action Plan agreed that during 2008-2011 it would (a) establish procedures for the assessment of the eutrophication status for the region; (b) assess the current situation with regard to alien species and their potential damage in the region; (c) undertake coastal environmental assessments methods for the region; (d) conduct GIS-based visualization of marine environmental data; and (e) establish a marine litter database.[385]

11. Pacific

321. In September 2008, the nineteenth meeting of officials and meeting of environmental ministers of the Pacific Regional Environment Programme identified 2009 as the Pacific Year of Climate Change and endorsed the Action Plan for the Pacific Islands Framework for Action on Climate Change. The meeting requested countries to implement licensing systems for ozone-depleting substances. The meeting also adopted the Action Strategy for Nature Conservation.[386]

322. Specific climate-related activities of the secretariat of the Programme include the Pacific climate change round table, the Pacific islands global climate observation system programme and implementation plan, the Pacific adaptation to

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[380] Ibid.

[381] Ibid.

[382] See report of the thirteenth intergovernmental meeting of the North-West Pacific Action Plan, document UNEP/NOWPAP IG 13/9 Rev.1.

[383] UNEP contribution.

[384] UNEP/NOWPAP IG 13/9 Rev.1, resolution 3.

[385] UNEP/NOWPAP IG 13/9 Rev.1.

[386] The report is available at www.sprep.org/2008SM19/pdfs/records_19thsmrecord.pdf.

climate change project and the Pacific islands greenhouse gas abatement through renewable energy project.

323. Other activities include actions on the conservation of marine fauna, regulation of whale and dolphin watching, management of wetlands and pollution control activities.

324. The Pacific Islands Applied Geoscience Commission continued to work on its ocean and island programme and undertook studies on various socio-economic and technical issues relating to the development of its Pacific islands regional maritime boundaries information system and the incorporation and validation of baseline and other data that generate maritime boundaries of member countries (see also para. 339 below).[387]

12. Red Sea and Gulf of Aden

325. During the period under review, the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden organized a number of multidisciplinary training programmes, including on guidelines for the economic valuation of coastal and marine habitats in the Red Sea and Gulf of Aden and the ecosystem approach to fisheries management, and on navigation and marine pollution.[388] On 1 July 2009, the Regional Organization adopted a new regional protocol on movement of personnel and equipment in case of emergency to facilitate the exchange of experts and equipment and their prompt movement to reach any oil or chemical spill site at sea and to facilitate requests for assistance by the concerned member State.[389]

326. In order to take a more coordinated approach to the protection of coral reefs from shipping, the Regional Organization has published guidelines for compensation following damage to coral reefs by ship or boat grounding.[390] It has also started execution of a project on economic valuation of the coastal and marine environment of the Red Sea and Gulf of Aden in collaborgtion with UNEP.[391]

13. Sea area of the Regional Organization for the Protection of the Marine Environment

327. A large amount of ballast water is discharged in the area covered by the Regional Organization for the Protection of the Marine Environment.[392] In November 2008, the Steering Committee of the Regional Organization decided that (a) vessels arriving from outside the area should undertake ballast water exchange en route over 200 nautical miles from the nearest land and in waters at least 200 metres deep; (b) if that was not possible for safety reasons, then vessels should be expected to make minor deviations to areas within the 200 nautical miles limit that could be identified as discharge areas, so long as such areas were more than

[387] Pacific Islands Applied Geoscience Commission contribution.

[388] See www.persga.org/inner.php?mainid=148.

[389] www.persga.org/calender.php?id=25.

[390] www.persga.org/Files/Publications/Recent_Publications/Guidelines_for_Compensation_Following_Damage_to_Coral_Reefs_by_Ship_Grounding.pdf. All member States have agreed to use environmental valuation to demonstrate the benefits of the environment for human welfare and to support decision-making that encourages sustainable development in the area.

[391] www.persga.org/calender.php?id=20.

[392] For information on the sea area, see www.ropme.com.

50 nautical miles from the nearest land in waters at least 200 metres deep; and (c) if that was not achievable, then the respective authority should be informed of the reason why, and further ballast water management measures might be required, consistent with the Ballast Water Management Convention and other international laws. These requirements will take effect as of 1 November 2009.

14. South-east Pacific

328. In January 2009, the Assembly of the Permanent Commission for the South Pacific adopted resolutions on (a) the protection of the marine environment, including in relation to eco-labelling of fish products, (b) development of a regional project for the conservation and management of sharks for Latin America and the Caribbean and (c) climate change and its impact on the coastal region of the south-east Pacific.[393] At a high-level meeting on climate change and its impact on the marine and coastal ecosystems of the south-east Pacific in November 2008, member States had recognized the vulnerability of the region to climate change and the need to continue efforts to identify adaptation strategies.[394] The Permanent Commission also organized a number of expert workshops on environmental issues during the period under review.[395]

15. Western, Central and Eastern Africa

329. The parties to the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region formulated a transboundary diagnostic analysis of the problems and causes of degradation of the shared coastal and marine environments which, together with the national integrated assessments, provided the technical basis for the formulation of the Strategic Action Programme for the Protection of the Coastal and Marine Environment of the Western Indian Ocean from Land-based Sources and Activities. The Strategic Action Plan is designed to address challenges in terms of pollution, destruction of critical habitats, changes in river flows and sediments loads, and global climate change. On that basis, the parties to the Nairobi Convention and to the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region have developed new protocols for preventing, reducing, mitigating and controlling pollution emanating from land-sources and activities, which are to be adopted by conferences of plenipotentiaries. The protocols address the significant pollution that arises in the region from cities, harbours, industries, agricultural systems and socio-economic activities along the coastal areas that lead to physical alteration and destruction of habitats.[396]

330. National capacities for management of the coastal and marine environment have been strengthened through the partnerships of the UNEP Regional Seas Programme with contracting parties, regional civil society organizations, large marine ecosystem projects and scientific organizations. Countries of the western Indian Ocean region have initiated integrated coastal zone management, the

[393] www.cpps-int.org/index.php/actividades/asamblea/95-xvi-asamblea-ordinaria-de-la-comision-permanente-del-pacifico-sur.html.

[394] www.cpps-int.org/cambio%20climatico/Declaracion.pdf.

[395] See www.cpps-int.org/index.php/actividades/talleres.html.

[396] UNEP contribution.

formulation of environmental impact assessment policies and legislation and expanded networks of marine protected areas. Efforts are under way to strengthen national capacities for integration of ecosystem-based management approaches to development and planning processes (see also para. 334 below).[397]

16. Wider Caribbean

331. In order to enhance the capacity of countries to implement the Protocol on Pollution from Land-based Sources to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (the "Cartagena Convention"), which is not yet in force, a regional network in marine science and technology for the Caribbean has been implemented. The data collected showed that the primary pollutants to the Caribbean Sea are from land-based sources. A greater commitment to ratification of the Cartagena Convention has been expressed in the region.[398] The UNEP Caribbean Environment Programme, together with the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, has assisted in facilitating the development and implementation of national programmes of action. A proposal on the development of a Caribbean regional fund for wastewater management was approved by the GEF Council in November 2008.[399]

332. The parties to the Protocol Concerning Specially Protected Areas and Wildlife adopted guidelines and criteria for the evaluation of protected areas to be listed under the Protocol and an action plan for the conservation of marine mammals in the wider Caribbean.

333. In response to the decline of coral reef ecosystems, a tool for economic valuation of coral reefs and the Mesoamerican Reef Alliance project were developed. The Caribbean large marine ecosystem was approved in 2008 to help the Caribbean countries improve the management of their shared living marine resources through an ecosystem approach.

334. In the context of shipping, regional seminars have been held to facilitate the ratification and implementation of MARPOL 73/78 annex V. Also in 2008, the regional cooperation mechanism for response to oil spills was developed.

L. Small island developing States

335. The Commission on Sustainable Development has recognized the importance of oceans, seas and a healthy marine life for the efforts of small island developing States to achieve sustainable development.[400] Small island developing States face a number of challenges in this regard (see A/63/63/Add.1, para. 253), including lack of capacity to adapt to climate change and strong reliance on coral reef ecosystems for food security and livelihood. In such a context, limited empirical data to support

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[397] Ibid.

[398] Ibid.

[399] www.unep.org/ecosystemmanagement/Portals/Regions/wid/316/language/en-US/Default.aspx.

[400] Contribution of the Department of Economic and Social Affairs.

understanding of the effects of climate change presents a risk of "mal-adaptation" and resource wastage.[401]

336. As a cross-cutting issue, protecting and managing the natural resource base of economic and social development, including oceans, seas, marine life and coastal areas, is an important consideration in each of the thematic issues considered by the Commission on Sustainable Development.[402] Commission resolution 17/1 on policy options and practical measures to expedite implementation in agriculture, rural development, land, drought, desertification and Africa, adopted in May 2009, called for action to address, inter alia, the threat of coastal erosion and land losses caused by sea-level rise, in particular in small island developing States and low-lying coastal States and areas, through land-use planning and climate change adaptation programmes, and the problems, in particular in small island developing States, of saltwater intrusion into freshwater supplies and agricultural land. It also called for action to ensure that national action plans in small island developing States address desertification of coastal areas and to strengthen the human resources and institutional capacity of those States and Africa for integrated rural development and sustainable management of natural resources, including in coastal zones and marine fisheries and wetlands. It further called for implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for Sustainable Development of Small Island Developing States in a manner that addresses climate change adaptation needs. Resolution 17/2 on preparations for the high-level meeting to review progress made in addressing the vulnerabilities of small island developing States through the implementation of the Mauritius Strategy, to be held in September 2010, envisages the convening of regional review workshops prior to the eighteenth session of the Commission.[403]

337. Work of particular importance to small island developing States on climate change is ongoing in the context of the United Nations Framework Convention on Climate Change (see para. 360 below).

338. At the regional level, leaders at the fortieth Pacific Islands Forum, held in August 2009, called upon world leaders to recognize and act on the threat climate change poses to the marine environment, particularly its effect on coral reefs, fisheries and food security.[404] They also undertook to continue to work in the region in support of General Assembly resolution 63/281 on climate change and its possible security implications.[405] The leaders also noted that fisheries resources were a major source of food and income for Pacific Islands countries and represented the main prospect for sustainable economic development for many Pacific people (see also paras. 190 and 191 above). The leaders welcomed the Pacific Oceanscape concept and the Pacific Ocean Arc initiative by Kiribati to increase, among others, marine protected area investment and networking. The Pacific Islands Forum secretariat was tasked, as a priority area for attention under

[401] Contribution of the Pacific Islands Applied Geoscience Commission.

[402] Contribution of the Department of Economic and Social Affairs.

[403] *Official Records of the Economic and Social Council, 2009, Supplement No. 9* (E/2009/29-E/CN.17/2009/19).

[404] See Forum communiqué, annex A, document PIFS(09)12, available at www.forumsec.org.fj.

[405] Ibid.

the Pacific Plan, to develop a framework for the Pacific Oceanscape drawing on the Pacific Islands Regional Ocean Policy.[406]

339. In its contribution, the Pacific Islands Applied Geoscience Commission noted that deep sea mineral mining in Pacific islands would shortly become a reality and that its potential for significant revenue generation required urgent support in the development of relevant policy, legal and technical frameworks and fiscal management. In that regard, the Commission was expected to implement a European Union-funded programme of work commencing in 2010, a significant component of which was to build the legal, policy and technical capacities of Pacific island States to effectively manage, regulate and participate in the sustainable development of those ocean resources within their jurisdiction. The Commission also drew attention to the urgent need for improved international efforts to assist Pacific island States in understanding and managing their deep sea living resources and to mobilize adequate resources to facilitate empirical research into climate-change stresses in vital sectors such as shoreline processes, water resources, food security and meteorology.

340. The General Assembly, in its resolution 63/214, took note of the efforts of the Caribbean States and the work undertaken by the Caribbean Sea Commission of the Association of Caribbean States, including the development of their concept of the designation of the Caribbean Sea as a special area within the context of sustainable development. It welcomed the plan of action adopted by the Caribbean Sea Commission and requested the Secretary-General to report to it at its sixty-fifth session on the implementation of the resolution, including a section on the possible legal and financial implications of the concept of the Caribbean Sea as a special area within the context of sustainable development, including its designation as such without prejudice to relevant international law, taking into account the views expressed by Member States and relevant regional organizations.[407] The second Meeting of Ministers of Tourism of the Association of Caribbean States, held in April 2009, adopted the Declaration of Barranquilla, which establishes the Sustainable Tourism Zone of the Caribbean. In addition, the Declaration calls for the setting up of an ad hoc working group to further develop the concept of an association of Caribbean cruise ship destinations.[408]

XII. Climate change and oceans

341. Climate change continues to figure prominently on the international agenda, just as changes to the climate continue to threaten sustainable development and the achievement of the Millennium Development Goals.[409] While there is ongoing uncertainty over the extent of the impacts and feedbacks from climate change, there is an urgent need to mitigate the extent of these impacts through reductions in

[406] Ibid.

[407] General Assembly resolution 63/214, paras. 2, 3 and 17.

[408] Association of Caribbean States news release, "ACS Ministers of Tourism agree to make the Greater Caribbean the first Sustainable Tourism Zone in the world", NR 12/2009, available at www.acs-aec.org.

[409] For additional background, see www.un.org/climatechange. Also see "Human impact report: climate change, the anatomy of a silent crisis", Global Humanitarian Forum, 2009.

greenhouse gas emissions and to strengthen adaptation measures to increase the resilience of coastal and marine ecosystems and vulnerable communities.[410]

A. Impacts of climate change on oceans

342. The world's oceans play a vital role in sustaining life on Earth by generating oxygen, absorbing carbon dioxide from the atmosphere, regulating climate and temperature and providing essential resources and services. Changes to the climate impact the oceans directly and lead to a number of critical threats, such as sea-level rise and ocean acidification, while also impairing the ability of marine and coastal ecosystems to provide food, income, protection, cultural identity and recreation to coastal residents, especially in vulnerable communities.[411]

343. Recent observations indicate that the impacts of climate change on the oceans will far exceed the projections of the Intergovernmental Panel on Climate Change in its fourth assessment report. Many key climate indicators are already moving beyond the patterns of natural variability within which our societies and economies have developed and thrived.[412] Ocean warming appears to be approximately 50 per cent greater than what was reported by the Panel.[413] New estimates suggest that sea-level rise by 2100 could be one metre or more, largely due to growing contributions of ice loss from Greenland and Antarctica.[414] The Arctic sea ice extent for 2008 was the second-lowest on record and the overall volume of ice was less than in any other year.[415] Impacts of ocean acidification on some major marine calcifiers already appear to be detectable, and some coastal waters have become corrosive to the shells of some bottom-dwelling organisms in spring.[416] The oceans may be losing their ability to absorb carbon and thus to continue absorbing greenhouse gases from the atmosphere.[417] With unabated greenhouse gas emissions, many trends in climate will likely accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.[418]

344. The General Assembly has reiterated its serious concern over the current and projected adverse effects of climate change on the marine environment and marine biodiversity, and has emphasized the urgency of addressing this issue.[419] In the

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[410] ADB contribution. Also see "The economics of climate change in Southeast Asia: a regional review, highlights", ADB, April 2009.

[411] ADB contribution.

[412] Fossil fuel emissions have increased at approximately 3.4 per cent per year since 2000. See Synthesis report of the climate change congress, Copenhagen, 10-12 March 2009, at climatecongress.ku.dk/pdf/synthesisreport.

[413] Ibid.

[414] Ibid.

[415] National Snow and Ice Data Center press release, "Arctic sea ice down to second-lowest extent, likely record-low volume", 2 October 2008.

[416] Monaco Declaration, The Ocean in a High CO2 World Symposium, 6-9 October 2008, Monaco.

[417] UNEP *Year Book 2009*, available at www.unep.org.

[418] Fossil fuel emissions have increased at approximately 3.4 per cent per year since 2000. See note 412 above.

[419] Resolution 63/111, preamble. The Assembly has also recently invited the relevant organs of the United Nations to intensify their efforts in considering and addressing climate change, including its possible security implications, and requested the Secretary-General to submit a comprehensive report to it at its sixty-fourth session on the possible security implications of climate change (see resolution 63/281).

context of fisheries, the Assembly has expressed concern over the current and projected adverse effects of climate change on food security and the sustainability of fisheries and has urged States to intensify efforts to assess and address the impacts of global climate change on the sustainability of fish stocks and the habitats that support them.[420]

345. The Monaco Declaration, adopted in October 2008, called for immediate action by policymakers to reduce CO_2 emissions sharply to avoid possible widespread and severe damage to marine ecosystems from ocean acidification.[421] The 2009 Manado Ocean Declaration recognized the need to achieve long-term conservation, management and sustainable use of marine living resources and coastal habitats; establish national strategies to sustainably manage marine and coastal ecosystems and enhance their resilience; reduce marine pollution; increase understanding and information exchange on coasts, oceans and climate change, particularly in developing countries; and establish and effectively manage marine protected areas, including resilient networks.

346. The impact of climate change on the oceans has also been recognized in the context of negotiations on a new agreement to succeed the Kyoto Protocol. The Bali Action Plan launched a comprehensive process to enable the full, effective and sustained implementation of the United Nations Framework Convention on Climate Change through long-term cooperative action, in order to reach an agreed outcome and adopt a decision at the fifteenth session of the Conference of the Parties to the Convention, to be held in Copenhagen from 7 to 18 December 2009. While the text of the agreed outcome is still under negotiation, the current version contains several references to oceans and the marine environment[422] and the final version will likely impact oceans by catalysing commitments and actions by parties in relation to finance, technology, capacity-building, mitigation and adaptation.[423]

347. *Understanding climate change impacts on the oceans*. The General Assembly has encouraged States to enhance their scientific activity to better understand the effects of climate change on the marine environment and marine biodiversity and develop ways and means of adaptation. It has also encouraged States and competent international organizations and other relevant institutions to urgently pursue further research on ocean acidification and to increase national, regional and international efforts to address levels of ocean acidity and the projected negative impact of such acidity on vulnerable marine ecosystems, particularly coral reefs.[424]

348. Numerous efforts are being made to respond to this challenge. The 2009 Manado Ocean Declaration recognized the importance of improving understanding of the impact of climate change on the ocean and the need to consider ocean dimensions to inform adaptation and mitigation strategies. The Declaration also emphasized (a) the need for improved understanding of the role of oceans in climate change and the effects of climate change on marine and coastal ecosystems, marine biodiversity and coastal communities, especially in developing countries and small island States; (b) the need for gathering and exchange of information related to the

[420] Resolution 63/112, preamble and para. 3.

[421] IOC contribution. See also http://ioc.unesco.org/iocweb/co2panel/HighOceanCO2.htm.

[422] See document FCCC/AWGLCA/2009/INF.1 at http://UNFCCC.int/resource/docs/2009/awg/eng/inf01.pdf.

[423] Contribution of the secretariat of the Convention.

[424] Resolution 63/111, paras. 99 and 100.

impact of climate change on marine ecosystems, communities and fisheries and other industries; emergency preparedness; monitoring and forecasting of climate change and ocean variability; and measures to improve public awareness of early warning system capacity; and (c) the need to promote affordable, environmentally sound and renewable ocean technologies and know-how, particularly in developing countries (see also paras. 222 and 286 above).[425]

B. Mitigating the impact of climate change in the context of ocean-related activities

1. Reduction of greenhouse gas emissions from ships

349. The importance of reducing greenhouse gas emissions from ships has been reinforced by recent evidence on the impact of ship emissions on climate change. The second IMO study on greenhouse gas emissions from ships estimated that international shipping emitted 870 million tons of CO_2 in 2007, or 2.7 per cent of global CO_2 emissions, as compared to the 1.8 per cent estimate in the 2000 IMO study.[426] Based on mid-range emissions scenarios, the report predicted that, by 2050, in the absence of regulations to control carbon dioxide emissions from shipping, such emissions could grow by a factor of 2 to 3, compared to 2007 emissions, as a result of the growth in shipping.[427] It also identified a significant potential for reduction of greenhouse gas emissions through technical and operational measures which, if implemented, could increase efficiency and reduce the emissions rate by 25 per cent to 75 per cent below current levels.[428]

350. In this context, IMO continued to make significant progress in developing technical and operational measures to reduce greenhouse gas emissions from ships. In October 2008, the IMO Marine Environment Protection Committee discussed the development of an energy efficiency design index for new ships, an energy efficiency operational indicator for existing ships, an efficiency management plan for all ships, guidance on best practices for fuel-efficient operation of ships and a possible emission trading scheme, a global levy on fuel and other hybrid market-based schemes for ships engaged in international trade.[429] The Committee approved the usage of the draft interim guidelines on the method of calculation of the energy efficiency design index for new ships for calculation and trial purposes, with a view to further refinement and improvement.[430]

351. The IMO Marine Environment Protection Committee considered whether an IMO regulatory framework on the reduction of greenhouse gas emissions from ships should be applied only to countries listed in annex I to the United Nations Framework Convention on Climate Change, or to all ships irrespective of the flags

[425] ADB contribution.

[426] Second IMO greenhouse gas study, 2009, document MEPC 59/INF.10 and Corr.1. The first IMO study was published in 2000 as document MEPC 45/8.

[427] See also updated 2000 study on greenhouse gas emissions from ships, phase 1 report, in IMO document MEPC 58/INF.6.

[428] IMO document MEPC 59/INF.10.

[429] IMO documents MEPC 58/23 and MEPC 59/4/Add.1. Also see report on the outcome of the second intersessional meeting of the Working Group on Greenhouse Gas Emissions from Ships, March 2009, MEPC 59/4/2.

[430] IMO contribution.

they fly.[431] In that context it was stressed that, as three quarters of the world's merchant fleet fly the flag of countries not listed in annex I, any regulatory regime on the reduction of greenhouse gases from shipping would be ineffective for the purpose of combating climate change if it were made applicable only to annex I countries.[432]

352. These discussions continued in July 2009, when the IMO Marine Environment Protection Committee agreed to disseminate a package of interim and voluntary technical and operational measures to reduce greenhouse gas emissions from ships: (a) interim guidelines on the method of calculation, and for voluntary verification of the energy efficiency design index for new ships, which were intended to stimulate innovation and technical development of all the elements influencing the energy efficiency of a ship from its design phase; (b) guidance on the development of a ship energy efficiency management plan for new and existing ships, which incorporated best practices for the fuel-efficient operation of ships; and (c) guidelines for voluntary use of the energy efficiency operational indicator for new and existing ships, which enabled operators to measure the fuel efficiency of a ship. The measures were intended to be used for trial purposes until the sixtieth session of the Committee in 2010, when they would be refined, as necessary, with a view to facilitating decisions on their scope of application and enactment.[433]

353. The Committee also agreed on a workplan for its further consideration of proposed market-based instruments to provide incentives for the shipping industry to reduce greenhouse gas emissions. There was a general preference that the greater part of any funds generated by such market-based instruments be used for climate change purposes in developing countries through existing or new funding mechanisms under the United Nations Framework Convention on Climate Change or other international organizations.[434] In that context, it was agreed that any regulatory scheme applied to greenhouse gas emissions from international shipping should be developed and enacted by IMO. It was further agreed that the debate on market-based measures would continue at the Committee's 2010 session, taking into account the relevant outcomes of the fifteenth meeting of the Conference of the Parties to the Convention in December 2009.[435]

2. Ocean fertilization and carbon sequestration

354. Particular concerns have been raised over new and emerging activities conducted in the oceans to mitigate the impact of climate change, including carbon sequestration and large-scale ocean iron fertilization.[436]

355. *Ocean fertilization.*[437] In resolution 63/111, the General Assembly welcomed developments within the framework of the London Convention and the London

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[431] IMO documents MEPC 58/23 and MEPC 59/4/Add.1.

[432] IMO contribution.

[433] IMO document MEPC 59/24.

[434] Ibid.

[435] Ibid.

[436] See A/55/61/Add.1, paras. 279-283; compilation of recent international instruments, agreements and recommendations regarding ocean fertilization, IMO/LC.org/SG.LC 30/INF.6 and Add.1; document LC 30 of the Conference of the Parties to the Convention on Biological Diversity; Monaco Declaration, note 408 above; and Wilhelm Declaration, note 300 above.

[437] See also A/64/66/Add.2.

Protocol and the Conference of the Parties to the Convention on Biological Diversity on the regulation of ocean fertilization.[438] In 2008, the Contracting Parties to the London Protocol agreed that they would consider a potential legally binding resolution or an amendment to the London Protocol on ocean fertilization at the next session. To that end, the thirty-first Consultative Meeting of Contracting Parties to the London Convention and the fourth Meeting of Contracting Parties to the London Protocol, in October 2009, will consider options concerning the regulation of ocean fertilization, ranging from reissuing the statement of concern issued by the Scientific Groups in 2007 to adopting resolutions and various possibilities for amending the London Protocol.[139]

356. *Carbon sequestration.*[440] The third Meeting of Contracting Parties to the London Protocol was unable to reach agreement on the need to amend article 6 concerning the prohibition of export of wastes for dumping, but it agreed that the London Protocol should not constitute a barrier to the transboundary movement of CO_2 streams between two or more countries. It further agreed to continue its discussions intersessionally, including on the options of an amendment to article 6, an interpretative resolution or a combination thereof.[441]

357. The thirty-first Consultative Meeting of Contracting Parties to the London Convention and the fourth Meeting of Contracting Parties to the London Protocol will consider the report of the intersessional correspondence group on transboundary CO_2 sequestration issues,[442] which contains a summary of responses received on legal issues and a proposal to amend article 6 of the London Protocol.[443] The Scientific Group under the London Protocol has agreed to recommend the review of the 2007 CO_2 sequestration guidelines if amendments to article 6 of the London Protocol are adopted in 2009.[444]

C. Adapting to projected climate change

358. The degree to which climate change impacts the oceans and the lives of people who depend on them is largely unknown.[445] However, the effects of climate change are already occurring and will intensify in the future, including significant alteration of coastal ecosystems, coastal hazards and lifestyle changes for fishers, coastal resource users and coastal communities.[446] There is an urgent need to develop measures to adapt to climate change to increase the resilience of coastal and marine

[438] Resolution 63/111, paras. 115 and 116; IMO document LC 30/16, annex 6, resolution LC-LP.1(2008), LC 30/16/1, LC 30/16/2, LC 30/16/3, LC 30/16/4, LC 30/16/5, LC 30/16/6, LC 30/16/7, LC 30/16/8, LC 30/16/9, LC 30/16/10, LC 30/16/11, LC 30/16/12, LC 30/16/13, LC 30/16/14, LC 30/16/15, LC 30/16/16, LC 30/16/17, LC 30/16/18, LC 30/16/19, LC 30/16/20, LC 30/16/21, LC 30/16/22, LC 30/16/23, LC 30/16/24, LC 30/16/25, LC 30/16/26, LC 30/16/27, LC 30/16/28, LC 30/16/29, annex 1.

[439] See report of the first meeting of the London Protocol Intersessional Legal and Related Issues Working Group on Ocean Fertilization, IMO document LP/CO2 2/5.

[440] For additional recent developments, see A/63/66/Add.2, paras. 90 and 91.

[441] IMO document LC 30/16.

[442] Report of the Intersessional Correspondence Group on Transboundary CO_2 Sequestration Issues, IMO document LC 31/5.

[443] IMO document LC 31/5/1.

[444] IMO document LC/SG 32/15.

[445] A recent study has estimated, with significant margin of error, that every year climate change causes over 300,000 people dead or 325 million people seriously affected and causes economic losses of $125 billion. 6 billion people are vulnerable, and 500 million are at extreme risk. See "Human impact report", note 400 above.

[446] "Adapting to coastal climate change: a guidebook for development planners", United States Agency for International Development, May 2009.

ecosystems and vulnerable communities to climate change, including by capacity-building and transfer of technology. The ability of ecosystems and habitats to adapt to climate impacts can be increased by reducing other stressors, such as overfishing and land-based pollution, which can increase the resilience or ability of the environment to adapt to future impacts, thus reducing threats to human welfare.[447]

359. Numerous efforts have been made to develop measures to respond to projected impacts of climate change. In this context, ADB highlighted the adoption of the Manado Ocean Declaration and emphasized (a) the importance of establishing and effectively managing marine protected areas, including representative resilient networks, in accordance with international law and on the basis of the best available science, and of the effort to conserve biodiversity, sustainable livelihoods and adapt to climate change; and (b) the importance of promoting the large marine ecosystem approach, as it enhances institutional and international cooperation among countries sharing marine ecosystems and their resources (also see paras. 222 and 286).[448]

360. The secretariat of the United Nations Framework Convention on Climate Change reported that, under the Subsidiary Body for Scientific and Technological Advice, parties had been working on the Nairobi work programme on impacts, vulnerability and adaptation to climate change covering the period 2005-2010. Activities and expected outputs envisaged in the second phase of the Nairobi work programme would continue to be structured around the two thematic areas (impacts and vulnerability; and adaptation planning, measures and actions), and the nine areas of work identified by the Subsidiary Body.[449]

361. The World Bank adopted a strategic framework for development and climate change in October 2008 that included mitigation measures and adaptation strategies. It planned to increase efforts to build awareness in client countries and undertake policy research, knowledge and capacity-building to develop national and local means to adapt to climate change. In particular, the Global Partnership on Fisheries programme would take steps to integrate adaptation to climate change into fisheries reform efforts in selected developing countries. The programme would also have a dialogue with partners to help identify key knowledge gaps, such as the impact of climate change on tropical and subtropical marine ecosystems and the potential adaptation strategies open to the affected fisheries and coastal communities.[450] In partnership with GEF, the World Bank also continued to support the global programme on Global Coral Reef Targeted Research and Capacity Building for Management (see also paras. 203-206 above).

XIII. Settlement of disputes

A. International Court of Justice

362. On 3 February 2009, the International Court of Justice rendered its Judgment in the *Case concerning Maritime Delimitation in the Black Sea* (Romania v.

[447] Ibid. See also "Synthesis of adaptation options for coastal areas", United States Environmental Protection Agency, January 2009.
[448] ADB contribution.
[449] Contribution of the secretariat of the Convention.
[450] World Bank contribution.

Ukraine), establishing the single maritime boundary delimiting the continental shelf and exclusive economic zones of Romania and Ukraine.[451]

B. International Tribunal for the Law of the Sea

363. The Special Chamber of the Tribunal formed to deal with the *Case concerning the Conservation and Sustainable Exploitation of Swordfish Stocks in the South-Eastern Pacific Ocean* (Chile v. European Community) adopted an Order on 11 December 2008, by which it extended the time limit for making preliminary objections until 1 January 2010 and maintained the rights of the parties to revive the proceedings at any time.[452]

XIV. International cooperation and coordination

A. United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

364. The Consultative Process held its tenth meeting in New York from 17 to 19 June 2009 and, as directed by the General Assembly, focused its discussion on the implementation of the outcomes of the Consultative Process, including a review of its achievements and shortcomings in its first nine meetings.[453] Following consultations with Member States, the President of the General Assembly reappointed Paul Badji (Senegal) and appointed Don McKay (New Zealand) as Co-Chairpersons of the tenth meeting. The report of the meeting consists of the Co-Chairpersons' summary of discussions (A/64/131).

B. Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects

365. The General Assembly, by its resolution 60/30, launched the start-up phase, the "assessment of assessments", as a preparatory stage towards the establishment of the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects. For that purpose, the Assembly established the Ad Hoc Steering Group to oversee the execution of the "assessment of assessments" and the Group of Experts to undertake the actual work, and invited UNEP and IOC to jointly undertake the role of lead agencies under the guidance of the Ad Hoc Steering Group. In paragraph 94 (d) of the resolution, the Assembly called for the preparation by the lead agencies of a report on the results of the "assessment of assessments".

366. At its fourth meeting, in April 2009, the Ad Hoc Steering Group considered the comprehensive "assessment of assessments" report prepared by the Group of Experts, which had been peer-reviewed by other experts, scientific institutions, international organizations and governments.[454] At the meeting, information was

[451] www.icj-cij.org/.

[452] http://www.itlos.org/.

[453] Resolution 63/111, para. 165.

[454] The report is available at: www.unga-regular-process.org/.

also provided by the lead agencies on the financial resources mobilized for the execution of the start-up phase of the regular process.[455] The Ad Hoc Steering Group also considered the "summary for decision-makers".

367. The outcomes of the fourth meeting of the Ad Hoc Steering Group and a summary of the findings of the Group of Experts have been included in a report on the results of the "assessment of assessments" (A/64/88), prepared pursuant to paragraph 94 (d) of General Assembly resolution 60/30. The report was submitted for consideration by the Ad Hoc Working Group of the Whole established by the General Assembly in paragraph 157 of its resolution 63/111 to recommend a course of action to the Assembly at its sixty-fourth session. The meeting of the Ad Hoc Working Group of the Whole was held in New York from 31 August to 4 September 2009.[456]

C. UN-Oceans

368. UN-Oceans, the inter-agency coordination mechanism on ocean and coastal issues within the United Nations system, held its seventh meeting on 14 and 15 April 2009. Participants[457] discussed progress made by the two thematic task forces through which UN-Oceans operates (biodiversity in marine areas beyond national jurisdiction[458] and marine protected areas and other area-based management tools) and the possibility of establishing a new task force on climate change. Discussions also focused on developments relating to the "assessment of assessments", the United Nations Atlas of the Oceans, issues related to the activities of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, the topic of focus of the tenth meeting of the Consultative Process (see para. 364 above), preparations for the celebration of the first observance of World Oceans Day by the United Nations (see para. 1 above) and the future direction of UN-Oceans. The need for elections for the position of Coordinator of UN-Oceans upon the retirement of the current Coordinator at the end of the year[459] was also raised.

369. As regards the "assessment of assessments", UN-Oceans members expressed their willingness to fully engage in and support the regular process by participating in the governance of the process and in the planning and execution of the future assessments. It was noted that UN-Oceans would be willing to play a more direct role in the coordination of the process and to become part of any follow-up decided upon by the General Assembly.

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[455] Report of the Ad Hoc Steering Group at its fourth meeting, UNEP/IOC document GRAME/AHSG/4/2.

[456] The report of the meeting will be submitted to the General Assembly at its sixty-fourth session.

[457] Representatives of the following entities attended the seventh meeting of UN-Oceans: WMO, the United Nations Industrial Development Organization (UNIDO), UNEP, the Secretariat of the United Nations (Department of Economic and Social Affairs and Division for Ocean Affairs and the Law of the Sea), FAO, IMO, UNDP (Deputy Coordinator) and IOC (Coordinator). A representative of the secretariat of the Convention on Biological Diversity participated in the meeting via teleconference.

[458] For further details on the activities of this task force, see A/64/66/Add.2.

[459] Patricio Bernal, Executive Secretary of IOC and Assistant Director-General of UNESCO, was elected Coordinator of UN-Oceans at its first meeting, on 25 and 26 January 2005.

370. With respect to the United Nations Atlas of the Oceans (www.oceansatlas.org), UN-Oceans suggested that it could be used as a key instrument to promote UN-Oceans activities and communication messages. Members of UN-Oceans emphasized the importance of sustaining support for the Atlas to ensure its continuity; a regular commitment of $10,000 per year from each United Nations agency for its maintenance and development was suggested. A technical committee meeting of the United Nations Atlas members is tentatively scheduled for the end of 2009.

371. During the discussions on future directions of UN-Oceans, the activities of UN-Water[460] were presented in order to identify similarities, parallels and differences. It was suggested that UN-Oceans could play a greater role in capacity-building, particularly through the development of training courses in partnership with other organizations and agencies. Participants were provided information on the useful experience of mapping United Nations agency activities in the "One United Nations" countries. It was suggested that a comprehensive global inventory of all current operational projects on oceans and coasts could be carried out for all the entities of UN-Oceans. Such a project would add value to the activities of the network and show the real impact of the United Nations system work on oceans and coasts. It was mentioned that the World Bank might have a similar inventory of marine projects and programmes and that UN-Oceans members might wish to contribute in building such inventory.

D. Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

372. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection is jointly sponsored by IMO, FAO, IAEA, WMO, IOC, the Division for Ocean Affairs and the Law of the Sea of the Secretariat, UNEP and the United Nations Industrial Development Organization. UNDP has expressed an interest in becoming a sponsor.

373. In recent years, the Joint Group of Experts has undergone a modernization and revitalization process which was supported in particular by the Swedish International Development Cooperation Agency. The Agency's support for the period 2006-2008 aimed at strengthening the network of the Joint Group of Experts, increasing the number of developing country experts participating in its activities; and supporting its participation in the regular process. In addition, a full-time officer from the Joint Group of Experts was seconded to IMO by the Swedish Maritime Administration for a three-year period ending in November 2009. The Joint Group of Experts has requested the Swedish International Development Cooperation Agency to extend its support to it for the period 2009-2011.[461]

374. At its thirty-sixth meeting, in April 2009, the Joint Group of Experts discussed the work carried out by its working groups, which were sponsored by lead

[460] UN-Water is the inter-agency mechanism established in 2003 by the High-Level Committee on Programmes to strengthen coordination and coherence among United Nations entities dealing with issues related to all aspects of freshwater and sanitation.

[461] IMO document MEPC/59/11/2.

agencies,[462] and held a special session on global atmospheric input of chemicals (nutrients) to the oceans.[463]

375. At the meeting the Joint Group of Experts also focused on its contribution to the regular process and expressed its willingness to assist within its capabilities and as appropriate by conducting thematic assessments on request; having some shared membership with the proposed expert panel to foster cooperation and coordination; providing its pool of experts as a resource;[464] and participating in peer reviews. It recalled that it had made a substantive contribution during the "assessment of assessments" phase by hosting of a workshop in 2006 to review the draft UNEP World Conservation Monitoring Centre survey report on assessment activities since 2003, preparing a report on the "assessment landscape of the open oceans" and participating as an observer at all meetings of the Group of Experts. Reference was also made to the global marine environmental assessments prepared in 1980, 1990 and 2001 under the supervision of the Joint Group of Experts.[465]

XV. Capacity-building activities of the Division for Ocean Affairs and the Law of the Sea

376. Specific capacity-building activities of the Division for Ocean Affairs and the Law of the Sea aimed at assisting States, in particular developing States, in the uniform and consistent application of the provisions of the Convention and the 1995 Fish Stocks Agreement include fellowship programmes, the management of trust funds and the organization of briefings, workshops and training courses. The present section provides information on some of those activities. For additional information on the capacity-building activities and other technical assistance programmes of the Division, see www.un.org/Depts/los/index.htm.

A. Briefings for General Assembly delegates

377. On 18 and 29 September and 1 October 2008, the Division organized three lunch-time information sessions to assist delegations in preparing for the informal consultations of the General Assembly on the draft resolutions on oceans and the law of the sea and sustainable fisheries. These briefings, which were well received, addressed the outcomes of several meetings serviced by the Division, as well as recent developments in FAO and the Convention on Biological Diversity.

378. On 3 June 2009, the Division and the United Nations Institute for Training and Research organized a briefing to inform delegates of recent developments and to assist delegations in preparing for the tenth meeting of the Consultative Process and the nineteenth Meeting of States Parties to the Convention. The briefing was attended by more than 50 participants and received a very positive feedback.

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[462] For information on the working groups, see www.gesamp.org.

[463] At the time of preparation of this report, details on the outcome of the thirty-sixth meeting were not yet available.

[464] The pool of experts proposed under the regular process is modelled after that of the Joint Group of Experts.

[465] For information on publications of the Joint Group of Experts, see www.gesamp.org.

B. Hamilton Shirley Amerasinghe Fellowship Programme

379. Owing to lack of adequate funding, the Division was unable to implement the twenty-second Hamilton Shirley Amerasinghe award (see A/63/63, paras. 388 and 389) and did not solicit applications for the twenty-third award. Considering the present state of affairs, it is also unlikely that the Division will solicit applications for the twenty-fourth award. A number of contributions have been received in 2008 and 2009 from Cyprus, Ireland, Lebanon, Monaco and Sri Lanka, which will help to replenish the Fellowship Trust Fund. The Division is actively pursuing several avenues to seek additional funding to revive the Fellowship as soon as practicable.

C. The United Nations-Nippon Foundation of Japan Fellowship Programme

380. The 2008-2009 Fellows, nationals of Cameroon, Ghana, Guatemala, Guyana, India, the Islamic Republic of Iran, Mozambique, the Syrian Arab Republic, Thailand and Turkey, successfully completed the Programme.

381. The inaugural Asia-Pacific alumni meeting, held in April 2009 at the Nippon Foundation of Japan headquarters in Tokyo, brought together the Alumni to exchange views and experiences and gain an understanding of contemporary ocean affairs and law of the sea issues of relevance to their States, the wider region and the international community. Substantive sessions were co-organized by the Ocean Policy Research Foundation, the University of Tokyo and the Ocean Division of the Japanese Ministry of Foreign Affairs.

382. The 2009-2010 Fellows have begun their research programmes in ocean affairs and the law of the sea or related disciplines. This fifth cycle of Fellows includes nationals of Barbados, Cameroon, Indonesia, Kiribati, Mauritius, the Philippines, Samoa, Sao Tome and Principe and Venezuela. Each Fellow has been placed with a prestigious host institution to undertake an individually customized six-month research programme, to be followed by three months under the auspices of the Division.

383. The application deadline for the 2010-2011 Fellowship awards was set for 15 August 2009, and the Fellowship Selection Committee will convene in the fourth quarter of 2009 to review the applications and award 2010-2011 Fellowships. Successful candidates will commence their programmes early in 2010.[466]

D. Training courses

384. Since the last reporting period, three courses have been delivered within the framework of the Train-Sea-Coast Programme. In the context of its capacity-building activities, the Division developed an interdisciplinary training manual on developing and implementing an ecosystem approach to the management of ocean-related activities (see A/63/63/Add.1, para. 306). The draft manual formed the basis of a training workshop given in Mombasa, Kenya, in October-November 2008 under the title "Ecosystem approaches to coastal and ocean management: focus on

[466] Further information, including the past Fellows' research papers, application files and an up-to-date list of participating host institutions, is available at www.un.org/depts/los/nippon.

ecosystems-based management in Eastern Africa". The training was organized in collaboration with the UNEP Regional Seas Programme, in particular the secretariat of the Nairobi Convention, as well as the Western Indian Ocean Marine Science Association and FAO. The workshop was also sponsored by the Government of Israel. It was designed to provide government officials and managers with the necessary knowledge and skills to develop and implement an ecosystem approach to the management of ocean activities in their regional and national context. Twenty-eight trainees participated in the workshop, coming from the Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia and the United Republic of Tanzania.

385. A training course was also developed and delivered at the national level by the Train-Sea-Coast/Black Sea Course Development Unit on "Nutrient pollution from agriculture and nutrient loads reduction" (Antalya, Turkey, 2-6 February 2009). It aimed to provide support for the control of agricultural pollution in the Black Sea through the teaching of environmentally sound agriculture methods and proper fertilizer usage.

386. Furthermore, the Benguela Current Course Development Unit delivered a revised and updated course on marine pollution control (Cape Town, South Africa, 23-27 February 2009) to 16 participants from the following West African coastal States (Angola, Benin, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone and Togo).

387. In addition, GPA continued to deliver training courses on improving municipal wastewater management in coastal cities in partnership with the UNESCO Institute for Water Education and under the umbrella of the Train-Sea-Coast Programme. Since the last reporting period, 18 courses have been delivered in Barbados, Egypt, Guyana, Jamaica, Kenya, Kiribati, Nigeria, Tonga, Trinidad and Tobago and the United Republic of Tanzania. A Web-based self-study management tutorial and a compendium of technologies have been further improved.[467]

388. Initially intended to end after three years of operation, the Train-Sea-Coast Programme was extended for several more years as its original funding was not depleted. With the final audit of the Programme scheduled for 2009, the current phase of the project will be brought to a close. Nonetheless, GEF has expressed its support for the Division's proposed strategy to seek new funding, including through joint implementation of activities with GEF International Waters projects having budgetary allocations for capacity-building. For additional information on the Programme and its catalogue of courses, see www.un.org/Depts/los/tsc_new/TSCindex.htm.

E. Trust funds

1. Commission on the Limits of the Continental Shelf

389. *Voluntary trust fund for the purpose of facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf for developing States, in particular the least developed countries and small island developing States, and compliance with article 76 of the United Nations Convention on the Law*

[467] For more information on GPA training courses, please see www.training.gpa.unep.org/.

of the Sea. The independent panel of experts which assists the Division in the examination of applications to the Trust Fund met in January and June 2009.[468] There were no contributions to the Trust Fund during the period under review. According to the provisional statement of accounts, the Trust Fund balance at the end of July 2009 was approximately $891,922.04.

390. On 17 and 24 February 2009, the Division organized briefings for delegates on the terms of reference, guidelines and rules of the trust fund as well as procedures related to the preparation, submission and processing of applications. The briefings were attended by about 20 representatives from developing countries that might seek financial support for activities related to the preparation of submissions to the Commission.

391. *Voluntary trust fund for the purpose of defraying the cost of participation of the members of the Commission on the Limits of the Continental Shelf from developing States in the meetings of the Commission*. During the reporting period, contributions to the trust fund were received from Argentina and China, while Norway and the Republic of Korea made pledges for future contributions. According to the provisional statement of accounts, the trust fund balance at the end of 31 July 2009 was estimated to be $431,557.45. Assistance from the trust fund was provided to eight members of the Commission to facilitate their participation in the twenty-third, resumed twenty-third and twenty-fourth sessions of the Commission.

2. Voluntary trust fund for the purpose of assisting developing countries, in particular least developed countries, small island developing States and landlocked developing States, in attending meetings of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

392. Representatives from the following 10 countries, including two panellists, received assistance from the voluntary trust fund in the form of economy class round-trip tickets to attend the tenth meeting of the Consultative Process in June 2009: Bahamas, Burkina Faso, Fiji, India, Madagascar, Mozambique, Nigeria, Palau, Paraguay and Suriname. Daily subsistence allowance was provided to two invited panellists, from India and Nigeria, in accordance with the revised terms of reference of the Trust Fund set out in General Assembly resolution 62/215. The total expenditure incurred for travel and daily subsistence allowance for the tenth meeting amounted to approximately $38,277, including programme support costs.

393. Contributions to the trust fund since January 2009 have been made by the Republic of Korea, Lebanon and New Zealand. According to the provisional statement of accounts for the period ending July 2009, the Trust Fund balance was estimated at $36,795.89.

3. Voluntary trust fund for the International Tribunal for the Law of the Sea

394. There have been no applications to the voluntary trust fund since the application by Guinea-Bissau in 2004. In December 2008, a contribution to the Trust Fund was received from Finland. As at 31 July 2009, according to the provisional statement of accounts, the Trust Fund balance was estimated at $126,142.74.

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[468] The members of the independent panel of experts in 2009 were the permanent representatives of Mexico, Norway, Papua New Guinea, Portugal and Senegal and the deputy permanent representatives of Japan and the Russian Federation.

4. Assistance Fund under Part VII of the United Nations Fish Stocks Agreement

395. FAO presented the financial report on the status of the Assistance Fund to the eighth round of informal consultations of States Parties to the 1995 Fish Stocks Agreement. No contributions were received in 2008, and as at 31 December 2008, the total of the contributions made to the fund, together with interest, was $864,000. Thus far in 2009, contributions have been received from Lebanon and New Zealand. In 2008, 31 applications for assistance were granted, although three approved travel requests were subsequently cancelled. Seventeen more applications were received in 2008, compared to 2007. Of the total expenditure of $165,777 in 2008, 55 per cent supported participation in sessions of regional fisheries management organizations and arrangements, 13 per cent supported participation in meetings held at FAO and the United Nations, 11 per cent supported participation in negotiations to establish the proposed South Pacific regional fisheries management organization, 8 per cent supported capacity-building activities and 2 per cent was devoted to meeting administrative costs. As at 31 December 2008, the balance in the Assistance Fund was $572,234. However, it was anticipated that the balance would be reduced to $424,790 taking into account commitments of funds to approved projects.

XVI. Conclusions

396. Among the various challenges and pressures facing the world's oceans, the present report draws particular attention to the threat posed by piracy to maritime security, the lives of seafarers and the safety of international shipping. It also underscores the adverse impacts of several human activities on the health and productivity of the world's oceans and seas. For example, vulnerable marine ecosystems, such as corals, and important fisheries are being damaged by overexploitation, illegal, unreported and unregulated fishing, destructive fishing practices, invasive alien species and marine pollution, especially from land-based sources.

397. Climate change, including increased sea temperatures, sea-level rise and ocean acidification, can adversely affect marine life, coastal and island communities and national economies. There is a need to enhance the resilience of coastal and marine ecosystems and vulnerable communities to climate change by increasing their adaptive capacities and reducing other pressures and threats such as overfishing and land-based pollution.

398. The international community has a collective duty to constructively address the multifaceted challenges facing the world's oceans and seas. In that regard, the United Nations Convention on the Law of the Sea along with other related legal instruments provides a solid legal framework within which all activities must be carried out in the oceans and seas.

399. To effectively implement the rule of law governing the oceans and seas and meet the fast-approaching targets established by the Johannesburg Plan of Implementation of the 2002 World Summit on Sustainable Development, further concerted efforts are required on the part of the international community.

400. In this regard, it is important to enhance scientific knowledge, improve sharing of information on anthropogenic impacts, increase capacity-building and encourage the transfer of technology to developing States. Capacity-building is particularly

vital in order to assist States in need to efficiently and effectively implement their obligations under the Convention and other relevant instruments and receive benefits from the regime contained therein. The activities of the Division for Ocean Affairs and the Law of the Sea in this respect, including the management of trust funds, administration of fellowships and coordination of training programmes, will be enhanced by additional financial and human resources.

401. The large number of submissions currently before the Commission on the Limits of the Continental Shelf, together with the submissions expected to be received in coming years, presents serious challenges for the Commission and its members, the submitting States and the Division. Addressing the workload of the Commission and identifying pragmatic solutions to ensure timely recommendations on the delineation of the continental shelf beyond 200 nautical miles has become a priority.